



SEQUENCE LISTING

<110> BOEHRINGER INGELHEIM (CANADA) LTD.

<120> SELF REPLICATING RNA MOLECULE FROM
HEPATITIS C VIRUS

<130> 13/083-2-C1

<140> 10/686,835

<141> 2003-10-16

<150> 10/029,907

<151> 2001-12-21

<150> 60/257,857

<151> 2000-12-22

<160> 28

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 8639

<212> DNA

<213> HCV

<220>

<221> CDS

<222> (1803)...(8408)

<400> 1

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| ccccccctcc | cgggagagcc | atagtgggtc | gcggaaccgg | tgagtacacc | ggaattgcc | 180 |
| ggacgaccgg | gtcctttctt | ggatcaaccc | gctcaatgcc | tggagatttg | ggcgtgcccc | 240 |
| cgcgagactg | ctagccgagt | agtgttgggt | cgcgaaaggc | cttggtgtac | tgccctgatg | 300 |
| ggtgcttgcg | agtgtccccg | gaggtctcgt | agaccgtgca | ccatgagcac | gaatcctaaa | 360 |
| cctcaaagaa | aaaccaaagg | gcgcgccatg | attgaacaag | atggattgca | cgcaggttct | 420 |
| ccggccgctt | gggtggagag | gctattcggc | tatgactggg | cacaacagac | aatcggctgc | 480 |
| tctgatgccg | ccgtgttccg | gctgtcagcg | caggggcgcc | cggttctttt | tgtcaagacc | 540 |
| gacctgtccg | gtgccctgaa | tgaactgcag | gacgaggcag | cgcggtctatc | gtggctggcc | 600 |
| acgacggggc | ttccttgccg | agctgtgtct | gacgttgtca | ctgaagcggg | aagggactgg | 660 |
| ctgctattgg | gcgaagtgcc | ggggcaggat | ctcctgtcat | ctcaccttgc | tcctgcccag | 720 |
| aaagtatcca | tcattggctga | tgcaatgcgg | cggctgcata | cgcttgatcc | ggctacctgc | 780 |
| ccattcgacc | accaagcgaa | acatcgcctc | gagcgcagac | gtactcggat | ggaagccggt | 840 |
| cttgtcgcac | aggatgatct | ggacgaagag | catcaggggc | tcgcgcagc | cgaactgttc | 900 |
| gccaggctca | aggcgcgcac | gcccgcggc | gaggatctcg | tcgtgaccca | tggcgaatgc | 960 |
| tgcttgccga | atatcatggg | ggaaaatggc | cgcttttctg | gattcatcga | ctgtggccgg | 1020 |
| ctgggtgtgg | cggaccgcta | tcaggacata | gcgttggcta | cccgtgatata | tgctgaagag | 1080 |
| cttggcgggc | aatgggctga | ccgcttcctc | gtgctttacg | gtatcgccgc | tcccgaattc | 1140 |
| cagcgcacgc | ccttctatcg | ccttcttgac | gagttcttct | gagttcgcgc | ccagatgtta | 1200 |
| acagaccaca | acggtttccc | tctagcggga | tcaattccgc | ccccccctct | aacgttactg | 1260 |
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| tgccgtcttt | tggcaatgtg | agggcccggg | aacctggccc | tgtcttcttg | acgagcattc | 1380 |
| ctaggggtct | ttcccctctc | gccaaaaggaa | tgcaaggctc | gttgaatgtc | gtgaagggaag | 1440 |
| cagttcctct | ggaagccttc | tgaagacaaa | caacgtctgt | agcgaccctt | tgcaggcagc | 1500 |
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| aatggctctc | ctcaagcgta | ttcaacaagg | ggctgaagga | tgcccagaag | gtacccattt | 1680 |
| gtatgggatc | tgatctgggg | cctcgggtga | catgctttac | atgtgtttag | tcgaggttaa | 1740 |
| aaaacgtcta | ggcccccgga | accacgggga | cgtggttttc | ctttgaaaaa | cacgataata | 1800 |
| cc atg gca | cgg gag atg | gca gca tcg | tgc gga | ggc gcg gtt | ttc gta | 1847 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Met | Asp | Arg | Glu | Met | Ala | Ala | Ser | Cys | Gly | Gly | Ala | Val | Phe | Val | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| ggt | ctg | ata | ctc | ttg | acc | ttg | tca | ccg | cac | tat | aag | ctg | ttc | ctc | gct | 1895 |
| Gly | Leu | Ile | Leu | Leu | Thr | Leu | Ser | Pro | His | Tyr | Lys | Leu | Phe | Leu | Ala | |
| | | | | 20 | | | | | 25 | | | | | 30 | | |
| agg | ctc | ata | tgg | tgg | tta | caa | tat | ttt | atc | acc | agg | gcc | gag | gca | cac | 1943 |
| Arg | Leu | Ile | Trp | Trp | Leu | Gln | Tyr | Phe | Ile | Thr | Arg | Ala | Glu | Ala | His | |
| | | | 35 | | | | | 40 | | | | | 45 | | | |
| ttg | caa | gtg | tgg | atc | ccc | ccc | ctc | aac | gtt | cgg | ggg | ggc | cgc | gat | gcc | 1991 |
| Leu | Gln | Val | Trp | Ile | Pro | Pro | Leu | Asn | Val | Arg | Gly | Gly | Arg | Asp | Ala | |
| | | 50 | | | | | 55 | | | | | 60 | | | | |
| gtc | atc | ctc | ctc | acg | tgc | gcg | atc | cac | cca | gag | cta | atc | ttt | acc | atc | 2039 |
| Val | Ile | Leu | Leu | Thr | Cys | Ala | Ile | His | Pro | Glu | Leu | Ile | Phe | Thr | Ile | |
| | 65 | | | | | 70 | | | | | 75 | | | | | |
| acc | aaa | atc | ttg | ctc | gcc | ata | ctc | ggt | cca | ctc | atg | gtg | ctc | cag | gct | 2087 |
| Thr | Lys | Ile | Leu | Leu | Ala | Ile | Leu | Gly | Pro | Leu | Met | Val | Leu | Gln | Ala | |
| | 80 | | | | 85 | | | | | 90 | | | | | 95 | |
| ggt | ata | acc | aaa | gtg | ccg | tac | ttc | gtg | cgc | gca | cac | ggg | ctc | att | cgt | 2135 |
| Gly | Ile | Thr | Lys | Val | Pro | Tyr | Phe | Val | Arg | Ala | His | Gly | Leu | Ile | Arg | |
| | | | | 100 | | | | | 105 | | | | | 110 | | |
| gca | tgc | atg | ctg | gtg | cgg | aag | gtt | gct | ggg | ggt | cat | tat | gtc | caa | atg | 2183 |
| Ala | Cys | Met | Leu | Val | Arg | Lys | Val | Ala | Gly | Gly | His | Tyr | Val | Gln | Met | |
| | | | 115 | | | | | 120 | | | | | 125 | | | |
| gct | ctc | atg | aag | ttg | gcc | gca | ctg | aca | ggt | acg | tac | gtt | tat | gac | cat | 2231 |
| Ala | Leu | Met | Lys | Leu | Ala | Ala | Leu | Thr | Gly | Thr | Tyr | Val | Tyr | Asp | His | |
| | | 130 | | | | | 135 | | | | | 140 | | | | |
| ctc | acc | cca | ctg | cgg | gac | tgg | gcc | cac | gcg | ggc | cta | cga | gac | ctt | gcg | 2279 |
| Leu | Thr | Pro | Leu | Arg | Asp | Trp | Ala | His | Ala | Gly | Leu | Arg | Asp | Leu | Ala | |
| | 145 | | | | | 150 | | | | | 155 | | | | | |
| gtg | gca | gtt | gag | ccc | gtc | gtc | ttc | tct | gat | atg | gag | acc | aag | gtt | atc | 2327 |
| Val | Ala | Val | Glu | Pro | Val | Val | Phe | Ser | Asp | Met | Glu | Thr | Lys | Val | Ile | |
| | 160 | | | | 165 | | | | | 170 | | | | | 175 | |
| acc | tgg | ggg | gca | gac | acc | gcg | gcg | tgt | ggg | gac | atc | atc | ttg | ggc | ctg | 2375 |
| Thr | Trp | Gly | Ala | Asp | Thr | Ala | Ala | Cys | Gly | Asp | Ile | Ile | Leu | Gly | Leu | |
| | | | | 180 | | | | | 185 | | | | | 190 | | |
| ccc | gtc | tcc | gcc | cgc | agg | ggg | agg | gag | ata | cat | ctg | gga | ccg | gca | gac | 2423 |
| Pro | Val | Ser | Ala | Arg | Arg | Gly | Arg | Glu | Ile | His | Leu | Gly | Pro | Ala | Asp | |
| | | | 195 | | | | | 200 | | | | | 205 | | | |
| agc | ctt | gaa | ggg | cag | ggg | tgg | cga | ctc | ctc | gcg | cct | att | acg | gcc | tac | 2471 |
| Ser | Leu | Glu | Gly | Gln | Gly | Trp | Arg | Leu | Leu | Ala | Pro | Ile | Thr | Ala | Tyr | |
| | | 210 | | | | | 215 | | | | | 220 | | | | |
| tcc | caa | cag | acg | cga | ggc | cta | ctt | ggc | tgc | atc | atc | act | agc | ctc | aca | 2519 |
| Ser | Gln | Gln | Thr | Arg | Gly | Leu | Leu | Gly | Cys | Ile | Ile | Thr | Ser | Leu | Thr | |
| | 225 | | | | | 230 | | | | | 235 | | | | | |
| ggc | cgg | gac | agg | aac | cag | gtc | gag | ggg | gag | gtc | caa | gtg | gtc | tcc | acc | 2567 |
| Gly | Arg | Asp | Arg | Asn | Gln | Val | Glu | Gly | Glu | Val | Gln | Val | Val | Ser | Thr | |
| | 240 | | | | 245 | | | | | 250 | | | | 255 | | |
| gca | aca | caa | tct | ttc | ctg | gcg | acc | tgc | gtc | aat | ggc | gtg | tgt | tgg | act | 2615 |
| | | | | | | | | | | 2 | | | | | | |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Ala | Thr | Gln | Ser | Phe 260 | Leu | Ala | Thr | Cys | Val 265 | Asn | Gly | Val | Cys | Trp 270 | Thr | |
| gtc Val | tat Tyr | cat His | ggt Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | 2663 |
| atc Ile | acc Thr | caa Gln 290 | atg Met | tac Tyr | acc Thr | aat Asn | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | 2711 |
| gcg Ala | ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | 2759 |
| gac Asp 320 | ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | agg Arg | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | 2807 |
| cgg Arg | ggc Gly | gac Asp | agc Ser | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | agg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | 2855 |
| ttg Leu | aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggt Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | 2903 |
| gtg Val | ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | 2951 |
| gtg Val | gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gaa Glu | acc Thr 395 | act Thr | atg Met | cgg Arg | tcc Ser | ccg Pro | 2999 |
| gtc Val 400 | ttc Phe | acg Thr | gac Asp | aac Asn 405 | tcg Ser | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | 3047 |
| gtg Val | gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggt Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | 3095 |
| ccg Pro | gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | 3143 |
| tcc Ser | gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggt Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | 3191 |
| ggt Gly | atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggt Gly | 3239 |
| gcc Ala 480 | ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggt Gly | ggt Gly 495 | 3287 |
| tgc Cys | tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile 505 | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | 3335 |
| act | gac | tcg | acc | act | atc | ctg | ggc | atc | ggc | aca 3 | gtc | ctg | gac | caa | gcg | 3383 |

| | | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|------|
| Thr | Asp | Ser | Thr 515 | Thr | Ile | Leu | Gly | Ile 520 | Gly | Thr | Val | Leu | Asp 525 | Gln | Ala | | |
| gag Glu | acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | | 3431 |
| gga Gly | tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | | 3479 |
| agc Ser 560 | act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | | 3527 |
| atc Ile | aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgt Cys | | 3575 |
| gat Asp | gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | | 3623 |
| tat Tyr | tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | | 3671 |
| att Ile | gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | | 3719 |
| gac Asp 640 | tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | | 3767 |
| agc Ser | ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | | 3815 |
| gcg Ala | gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggt Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | | 3863 |
| ggc Gly | att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | | 3911 |
| gat Asp | tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | | 3959 |
| gag Glu 720 | ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | | 4007 |
| aca Thr | cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | agc Ser | | 4055 |
| gtc Val | ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | | 4103 |
| aag | cag | gca | gga | gac | aac | ttc | ccc | tac | ctg | gta | gca | tac | cag | gct | acg | | 4151 |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|------|
| Lys | Gln | Ala 770 | Gly | Asp | Asn | Phe | Pro 775 | Tyr | Leu | Val | Ala | Tyr 780 | Gln | Ala | Thr | |
| gtg Val | tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln 790 | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | 4199 |
| aag Lys 800 | tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | 4247 |
| ctg Leu | tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | 4295 |
| ata Ile | acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys 840 | atg Met | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | 4343 |
| acg Thr | agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala 860 | gct Ala 860 | ctg Leu | gcc Ala | gcg Ala | 4391 |
| tat Tyr | tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | 4439 |
| tcc Ser 880 | gga Gly | aag Lys | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | 4487 |
| ttc Phe | gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgc Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | 4535 |
| gga Gly | atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe 920 | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | 4583 |
| caa Gln | aca Thr | gcc Ala 930 | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | 4631 |
| aag Lys | tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | 4679 |
| atc Ile 960 | agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | 4727 |
| ccc Pro | gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe | aca Thr 985 | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | 4775 |
| ctc Leu | acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly 1005 | gga Gly 1005 | tgg Trp | gtg Val | 4823 |
| gcc Ala | gcc Ala | caa Gln 1010 | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser 1015 | gct Ala | gct Ala | tct Ser | gct Ala | ttc Phe 1020 | gta Val | ggc Gly | gcc Ala | 4871 |
| ggc | atc | gct | gga | gcg | gct | gtt | ggc | agc | ata | ggc 5 | ctt | ggg | aag | gtg | ctt | 4919 |

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|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Gly | Ile | Ala | Gly | Ala | Ala | Val | Gly | Ser | Ile | Gly | Leu | Gly | Lys | Val | Leu | |
| 1025 | | | | | | 1030 | | | | | 1035 | | | | | |
| gtg | gat | att | ttg | gca | ggg | tat | gga | gca | ggg | gtg | gca | ggc | gcg | ctc | gtg | 4967 |
| Val | Asp | Ile | Leu | Ala | Gly | Tyr | Gly | Ala | Gly | Val | Ala | Gly | Ala | Leu | Val | |
| 1040 | | | | | 1045 | | | | | 1050 | | | | | 1055 | |
| gcc | ttt | aag | gtc | atg | agc | ggc | gag | atg | ccc | tcc | acc | gag | gac | ctg | gtt | 5015 |
| Ala | Phe | Lys | Val | Met | Ser | Gly | Glu | Met | Pro | Ser | Thr | Glu | Asp | Leu | Val | |
| | | | | 1060 | | | | | 1065 | | | | | 1070 | | |
| aac | cta | ctc | cct | gct | atc | ctc | tcc | cct | ggc | gcc | cta | gtc | gtc | ggg | gtc | 5063 |
| Asn | Leu | Leu | Pro | Ala | Ile | Leu | Ser | Pro | Gly | Ala | Leu | Val | Val | Gly | Val | |
| | | | 1075 | | | | | 1080 | | | | | 1085 | | | |
| gtg | tgc | gca | gcg | ata | ctg | cgt | cgg | cac | gtg | ggc | cca | ggg | gag | ggg | gct | 5111 |
| Val | Cys | Ala | Ala | Ile | Leu | Arg | Arg | His | Val | Gly | Pro | Gly | Glu | Gly | Ala | |
| | | 1090 | | | | | 1095 | | | | | 1100 | | | | |
| gtg | cag | tgg | atg | aac | cgg | ctg | ata | gcg | ttc | gct | tcg | cgg | ggt | aac | cac | 5159 |
| Val | Gln | Trp | Met | Asn | Arg | Leu | Ile | Ala | Phe | Ala | Ser | Arg | Gly | Asn | His | |
| | 1105 | | | | | 1110 | | | | | 1115 | | | | | |
| gtc | tcc | ccc | acg | cac | tat | gtg | cct | gag | agc | gac | gct | gca | gca | cgt | gtc | 5207 |
| Val | Ser | Pro | Thr | His | Tyr | Val | Pro | Glu | Ser | Asp | Ala | Ala | Ala | Arg | Val | |
| 1120 | | | | | 1125 | | | | | 1130 | | | | | 1135 | |
| act | cag | atc | ctc | tct | agt | ctt | acc | atc | act | cag | ctg | ctg | aag | agg | ctt | 5255 |
| Thr | Gln | Ile | Leu | Ser | Ser | Leu | Thr | Ile | Thr | Gln | Leu | Leu | Lys | Arg | Leu | |
| | | | | 1140 | | | | | 1145 | | | | | 1150 | | |
| cac | cag | tgg | atc | aac | gag | gac | tgc | tcc | acg | cca | tgc | tcc | ggc | tcg | tgg | 5303 |
| His | Gln | Trp | Ile | Asn | Glu | Asp | Cys | Ser | Thr | Pro | Cys | Ser | Gly | Ser | Trp | |
| | | | 1155 | | | | | 1160 | | | | | 1165 | | | |
| cta | aga | gat | gtt | tgg | gat | tgg | ata | tgc | acg | gtg | ttg | act | gat | ttc | aag | 5351 |
| Leu | Arg | Asp | Val | Trp | Asp | Trp | Ile | Cys | Thr | Val | Leu | Thr | Asp | Phe | Lys | |
| | | 1170 | | | | 1175 | | | | | | 1180 | | | | |
| acc | tgg | ctc | cag | tcc | aag | ctc | ctg | ccg | cga | ttg | ccg | gga | gtc | ccc | ttc | 5399 |
| Thr | Trp | Leu | Gln | Ser | Lys | Leu | Leu | Pro | Arg | Leu | Pro | Gly | Val | Pro | Phe | |
| | 1185 | | | | | 1190 | | | | | 1195 | | | | | |
| ttc | tca | tgt | caa | cgt | ggg | tac | aag | gga | gtc | tgg | cgg | ggc | gac | ggc | atc | 5447 |
| Phe | Ser | Cys | Gln | Arg | Gly | Tyr | Lys | Gly | Val | Trp | Arg | Gly | Asp | Gly | Ile | |
| 1200 | | | | | 1205 | | | | | 1210 | | | | | 1215 | |
| atg | caa | acc | acc | tgc | cca | tgt | gga | gca | cag | atc | acc | gga | cat | gtg | aaa | 5495 |
| Met | Gln | Thr | Thr | Cys | Pro | Cys | Gly | Ala | Gln | Ile | Thr | Gly | His | Val | Lys | |
| | | | | 1220 | | | | | 1225 | | | | | 1230 | | |
| aac | ggg | tcc | atg | agg | atc | gtg | ggg | cct | agg | acc | tgt | agt | aac | acg | tgg | 5543 |
| Asn | Gly | Ser | Met | Arg | Ile | Val | Gly | Pro | Arg | Thr | Cys | Ser | Asn | Thr | Trp | |
| | | | 1235 | | | | | 1240 | | | | | 1245 | | | |
| cat | gga | aca | ttc | ccc | att | aac | gcg | tac | acc | acg | ggc | ccc | tgc | acg | ccc | 5591 |
| His | Gly | Thr | Phe | Pro | Ile | Asn | Ala | Tyr | Thr | Thr | Gly | Pro | Cys | Thr | Pro | |
| | | 1250 | | | | | 1255 | | | | | 1260 | | | | |
| tcc | ccg | gcg | cca | aat | tat | tct | agg | gcg | ctg | tgg | cgg | gtg | gct | gct | gag | 5639 |
| Ser | Pro | Ala | Pro | Asn | Tyr | Ser | Arg | Ala | Leu | Trp | Arg | Val | Ala | Ala | Glu | |
| | 1265 | | | | | 1270 | | | | | 1275 | | | | | |
| gag | tac | gtg | gag | gtt | acg | cgg | gtg | ggg | gat | ttc | cac | tac | gtg | acg | ggc | 5687 |

| | | | | | | | | | | | | | | | | |
|--------------------|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| Glu 1280 | Tyr | Val | Glu | Val | Thr 1285 | Arg | Val | Gly | Asp | Phe 1290 | His | Tyr | Val | Thr | Gly 1295 | |
| atg Met | acc Thr | act Thr | gac Asp | aac Asn 1300 | gta Val | aag Lys | tgc Cys | ccg Pro | tgt Cys 1305 | cag Gln | gtt Val | ccg Pro | gcc Ala | ccc Pro 1310 | gaa Glu | 5735 |
| ttc Phe | ttc Phe | aca Thr | gaa Glu 1315 | gtg Val | gat Asp | ggg Gly | gtg Val | cgg Arg 1320 | ttg Leu | cac His | agg Arg | tac Tyr | gct Ala 1325 | cca Pro | gcg Ala | 5783 |
| tgc Cys | aaa Lys | ccc Pro 1330 | ctc Leu | cta Leu | cgg Arg | gag Glu | gag Glu 1335 | gtc Val | aca Thr | ttc Phe | ctg Leu | gtc Val 1340 | ggg Gly | ctc Leu | aat Asn | 5831 |
| caa Gln 1345 | tac Tyr | ctg Leu | gtt Val | ggg Gly | tca Ser | cag Gln 1350 | ctc Leu | cca Pro | tgc Cys | gag Glu 1355 | ccc Pro | gaa Glu | ccg Pro | gac Asp | gta Val | 5879 |
| gca Ala 1360 | gtg Val | ctc Leu | act Thr | tcc Ser | atg Met 1365 | ctc Leu | acc Thr | gac Asp | ccc Pro | tcc Ser 1370 | cac His | att Ile | acg Thr | gcg Ala | gag Glu 1375 | 5927 |
| acg Thr | gct Ala | aag Lys | cgt Arg | agg Arg 1380 | ctg Leu | gcc Ala | agg Arg | gga Gly 1385 | tct Ser | ccc Pro | ccc Pro | tcc Ser | ttg Leu | gcc Ala 1390 | agc Ser | 5975 |
| tca Ser | tca Ser | gct Ala | agc Ser 1395 | cag Gln | ctg Leu | tct Ser | gcg Ala | cct Pro 1400 | tcc Ser | ttg Leu | aag Lys | gca Ala | aca Thr 1405 | tgc Cys | act Thr | 6023 |
| acc Thr | cgt Arg | cat His 1410 | gac Asp | tcc Ser | ccg Pro | gac Asp | gct Ala 1415 | gac Asp | ctc Leu | atc Ile | gag Glu | gcc Ala 1420 | aac Asn | ctc Leu | ctg Leu | 6071 |
| tgg Trp 1425 | cgg Arg | cag Gln | gag Glu | atg Met | ggc Gly | ggg Gly 1430 | aac Asn | atc Ile | acc Thr | cgc Arg | gtg Val 1435 | gag Glu | tca Ser | gaa Glu | aat Asn | 6119 |
| aag Lys 1440 | gta Val | gta Val | att Ile | ttg Leu | gac Asp 1445 | tct Ser | ttc Phe | gag Glu | ccg Pro | ctc Leu 1450 | caa Gln | gcg Ala | gag Glu | gag Glu | gat Asp 1455 | 6167 |
| gag Glu | agg Arg | gaa Glu | gta Val | tcc Ser 1460 | gtt Val | ccg Pro | gcg Ala | gag Glu | atc Ile 1465 | ctg Leu | cgg Arg | agg Arg | tcc Ser | agg Arg 1470 | aaa Lys | 6215 |
| ttc Phe | cct Pro | cga Arg | gcg Ala 1475 | atg Met | ccc Pro | ata Ile | tgg Trp | gca Ala 1480 | cgc Arg | ccg Pro | gat Asp | tac Tyr | aac Asn 1485 | cct Pro | cca Pro | 6263 |
| ctg Leu | tta Leu | gag Glu 1490 | tcc Ser | tgg Trp | aag Lys | gac Asp | ccg Pro 1495 | gac Asp | tac Tyr | gtc Val | cct Pro | cca Pro 1500 | gtg Val | gta Val | cac His | 6311 |
| ggg Gly 1505 | tgt Cys | cca Pro | ttg Leu | ccg Pro | cct Pro | gcc Ala 1510 | aag Lys | gcc Ala | cct Pro | ccg Pro | ata Ile 1515 | cca Pro | cct Pro | cca Pro | cgg Arg | 6359 |
| agg Arg 1520 | aag Lys | agg Arg | acg Thr | gtt Val | gtc Val 1525 | ctg Leu | tca Ser | gaa Glu | tct Ser | acc Thr 1530 | gtg Val | tct Ser | tct Ser | gcc Ala | ttg Leu 1535 | 6407 |
| gcg | gag | ctc | gcc | aca | aag | acc | ttc | ggc | agc | tcc | gaa | tcg | tcg | gcc | gtc | 6455 |

| | | | | | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| Ala | Glu | Leu | Ala | Thr | Lys | Thr | Phe | Gly | Ser | Ser | Glu | Ser | Ser | Ala | Val | | |
| | | | | 1540 | | | | | 1545 | | | | | 1550 | | | |
| gac | agc | ggc | acg | gca | acg | gcc | tct | cct | gac | cag | ccc | tcc | gac | gac | ggc | 6503 | |
| Asp | Ser | Gly | Thr | Ala | Thr | Ala | Ser | Pro | Asp | Gln | Pro | Ser | Asp | Asp | Gly | | |
| | | | 1555 | | | | | 1560 | | | | | 1565 | | | | |
| gac | gcg | gga | tcc | gac | gtt | gag | tcg | tac | tcc | tcc | atg | ccc | ccc | ctt | gag | 6551 | |
| Asp | Ala | | Ser | Asp | Val | Glu | Ser | Tyr | Ser | Ser | Met | Pro | Pro | Leu | Glu | | |
| | | 1570 | | | | | 1575 | | | | | 1580 | | | | | |
| ggg | gag | ccg | ggg | gat | ccc | gat | ctc | agc | gac | ggg | tct | tgg | tct | acc | gta | 6599 | |
| Gly | Glu | Pro | Gly | Asp | Pro | Asp | Leu | Ser | Asp | Gly | Ser | Trp | Ser | Thr | Val | | |
| | 1585 | | | | | 1590 | | | | | 1595 | | | | | | |
| agc | gag | gag | gct | agt | gag | gac | gtc | gtc | tgc | tgc | tcg | atg | tcc | tac | aca | 6647 | |
| Ser | Glu | Glu | Ala | Ser | Glu | Asp | Val | Val | Cys | Cys | Ser | Met | Ser | Tyr | Thr | | |
| | 1600 | | | | 1605 | | | | 1610 | | | | | | 1615 | | |
| tgg | aca | ggc | gcc | ctg | atc | acg | cca | tgc | gct | gcg | gag | gaa | acc | aag | ctg | 6695 | |
| Trp | Thr | Gly | Ala | Leu | Ile | Thr | Pro | Cys | Ala | Ala | Glu | Glu | Thr | Lys | Leu | | |
| | | | | 1620 | | | | | 1625 | | | | | 1630 | | | |
| ccc | atc | aat | gca | ctg | agc | aac | tct | ttg | ctc | cgt | cac | cac | aac | ttg | gtc | 6743 | |
| Pro | Ile | Asn | Ala | Leu | Ser | Asn | Ser | Leu | Leu | Arg | His | His | Asn | Leu | Val | | |
| | | | 1635 | | | | | 1640 | | | | | 1645 | | | | |
| tat | gct | aca | aca | tct | cgc | agc | gca | agc | ctg | cgg | cag | aag | aag | gtc | acc | 6791 | |
| Tyr | Ala | Thr | Thr | Ser | Arg | Ser | Ala | Ser | Leu | Arg | Gln | Lys | Lys | Val | Thr | | |
| | | 1650 | | | | | 1655 | | | | | 1660 | | | | | |
| ttt | gac | aga | ctg | cag | gtc | ctg | gac | gac | cac | tac | cgg | gac | gtg | ctc | aag | 6839 | |
| Phe | Asp | Arg | Leu | Gln | Val | Leu | Asp | Asp | His | Tyr | Arg | Asp | Val | Leu | Lys | | |
| | 1665 | | | | | 1670 | | | | | 1675 | | | | | | |
| gag | atg | aag | gcg | aag | gcg | tcc | aca | gtt | aag | gct | aaa | ctt | cta | tcc | gtg | 6887 | |
| Glu | Met | Lys | Ala | Lys | Ala | Ser | Thr | Val | Lys | Ala | Lys | Leu | Leu | Ser | Val | | |
| | 1680 | | | | 1685 | | | | 1690 | | | | | | 1695 | | |
| gag | gaa | gcc | tgt | aag | ctg | acg | ccc | cca | cat | tcg | gcc | aga | tct | aaa | ttt | 6935 | |
| Glu | Glu | Ala | Cys | Lys | Leu | Thr | Pro | Pro | His | Ser | Ala | Arg | Ser | Lys | Phe | | |
| | | | 1700 | | | | | | 1705 | | | | | 1710 | | | |
| ggc | tat | ggg | gca | aag | gac | gtc | cgg | aac | cta | tcc | agc | aag | gcc | gtt | aac | 6983 | |
| Gly | Tyr | Gly | Ala | Lys | Asp | Val | Arg | Asn | Leu | Ser | Ser | Lys | Ala | Val | Asn | | |
| | | | 1715 | | | | | 1720 | | | | | 1725 | | | | |
| cac | atc | cgc | tcc | gtg | tgg | aag | gac | ttg | ctg | gaa | gac | act | gag | aca | cca | 7031 | |
| His | Ile | Arg | Ser | Val | Trp | Lys | Asp | Leu | Leu | Glu | Asp | Thr | Glu | Thr | Pro | | |
| | | 1730 | | | | | 1735 | | | | | 1740 | | | | | |
| att | gac | acc | acc | atc | atg | gca | aaa | aat | gag | gtt | ttc | tgc | gtc | caa | cca | 7079 | |
| Ile | Asp | Thr | Thr | Ile | Met | Ala | Lys | Asn | Glu | Val | Phe | Cys | Val | Gln | Pro | | |
| | 1745 | | | | | 1750 | | | | | 1755 | | | | | | |
| gag | aag | ggg | ggc | cgc | aag | cca | gct | cgc | ctt | atc | gta | ttc | cca | gat | ttg | 7127 | |
| Glu | Lys | Gly | Gly | Arg | Lys | Pro | Ala | Arg | Leu | Ile | Val | Phe | Pro | Asp | Leu | | |
| | 1760 | | | | 1765 | | | | | 1770 | | | | | 1775 | | |
| ggg | gtt | cgt | gtg | tgc | gag | aaa | atg | gcc | ctt | tac | gat | gtg | gtc | tcc | acc | 7175 | |
| Gly | Val | Arg | Val | Cys | Glu | Lys | Met | Ala | Leu | Tyr | Asp | Val | Val | Ser | Thr | | |
| | | | | 1780 | | | | 1785 | | | | | | 1790 | | | |
| ctc | cct | cag | gcc | gtg | atg | ggc | tct | tca | tac | gga | ttc | caa | tac | tct | cct | 7223 | |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Leu | Pro | Gln | Ala | Val | Met | Gly | Ser | Ser | Tyr | Gly | Phe | Gln | Tyr | Ser | Pro | |
| | | | 1795 | | | | | 1800 | | | | | 1805 | | | |
| gga | cag | cgg | gtc | gag | ttc | ctg | gtg | aat | gcc | tgg | aaa | gcg | aag | aaa | tgc | 7271 |
| Gly | Gln | Arg | Val | Glu | Phe | Leu | Val | Asn | Ala | Trp | Lys | Ala | Lys | Lys | Cys | |
| | | 1810 | | | | | 1815 | | | | | 1820 | | | | |
| cct | atg | ggc | ttc | gca | tat | gac | acc | cgc | tgt | ttt | gac | tca | acg | gtc | act | 7319 |
| Pro | Met | Gly | Phe | Ala | Tyr | Asp | Thr | Arg | Cys | Phe | Asp | Ser | Thr | Val | Thr | |
| | 1825 | | | | | 1830 | | | | | 1835 | | | | | |
| gag | aat | gac | atc | cgt | gtt | gag | gag | tca | atc | tac | caa | tgt | tgt | gac | ttg | 7367 |
| Glu | Asn | Asp | Ile | Arg | Val | Glu | Glu | Ser | Ile | Tyr | Gln | Cys | Cys | Asp | Leu | |
| 1840 | | | | | 1845 | | | | | 1850 | | | | | 1855 | |
| gcc | ccc | gaa | gcc | aga | cag | gcc | ata | agg | tcg | ctc | aca | gag | cgg | ctt | tac | 7415 |
| Ala | Pro | Glu | Ala | Arg | Gln | Ala | Ile | Arg | Ser | Leu | Thr | Glu | Arg | Leu | Tyr | |
| | | | | 1860 | | | | | 1865 | | | | | 1870 | | |
| atc | ggg | ggc | ccc | ctg | act | aat | tct | aaa | ggg | cag | aac | tgc | ggc | tat | cgc | 7463 |
| Ile | Gly | Gly | Pro | Leu | Thr | Asn | Ser | Lys | Gly | Gln | Asn | Cys | Gly | Tyr | Arg | |
| | | | 1875 | | | | | 1880 | | | | | 1885 | | | |
| cgg | tgc | cgc | gcg | agc | ggt | gta | ctg | acg | acc | agc | tgc | ggt | aat | acc | ctc | 7511 |
| Arg | Cys | Arg | Ala | Ser | Gly | Val | Leu | Thr | Thr | Ser | Cys | Gly | Asn | Thr | Leu | |
| | | 1890 | | | | | 1895 | | | | | 1900 | | | | |
| aca | tgt | tac | ttg | aag | gcc | gct | gcg | gcc | tgt | cga | gct | gcg | aag | ctc | cag | 7559 |
| Thr | Cys | Tyr | Leu | Lys | Ala | Ala | Ala | Ala | Cys | Arg | Ala | Ala | Lys | Leu | Gln | |
| | 1905 | | | | | 1910 | | | | | 1915 | | | | | |
| gac | tgc | acg | atg | ctc | gta | tgc | gga | gac | gac | ctt | gtc | gtt | atc | tgt | gaa | 7607 |
| Asp | Cys | Thr | Met | Leu | Val | Cys | Gly | Asp | Asp | Leu | Val | Val | Ile | Cys | Glu | |
| 1920 | | | | | 1925 | | | | | 1930 | | | | | 1935 | |
| agc | gcg | ggg | acc | caa | gag | gac | gag | gcg | agc | cta | cgg | gcc | ttc | acg | gag | 7655 |
| Ser | Ala | Gly | Thr | Gln | Glu | Asp | Glu | Ala | Ser | Leu | Arg | Ala | Phe | Thr | Glu | |
| | | | | 1940 | | | | | 1945 | | | | | 1950 | | |
| gct | atg | act | aga | tac | tct | gcc | ccc | cct | ggg | gac | ccg | ccc | aaa | cca | gaa | 7703 |
| Ala | Met | Thr | Arg | Tyr | Ser | Ala | Pro | Pro | Gly | Asp | Pro | Pro | Lys | Pro | Glu | |
| | | | 1955 | | | | | 1960 | | | | | 1965 | | | |
| tac | gac | ttg | gag | ttg | ata | aca | tca | tgc | tcc | tcc | aat | gtg | tca | gtc | gcg | 7751 |
| Tyr | Asp | Leu | Glu | Leu | Ile | Thr | Ser | Cys | Ser | Ser | Asn | Val | Ser | Val | Ala | |
| | | 1970 | | | | | 1975 | | | | | 1980 | | | | |
| cac | gat | gca | tct | ggc | aaa | agg | gtg | tac | tat | ctc | acc | cgt | gac | ccc | acc | 7799 |
| His | Asp | Ala | Ser | Gly | Lys | Arg | Val | Tyr | Tyr | Leu | Thr | Arg | Asp | Pro | Thr | |
| | 1985 | | | | | 1990 | | | | | 1995 | | | | | |
| acc | ccc | ctt | gcg | cgg | gct | gcg | tgg | gag | aca | gct | aga | cac | act | cca | gtc | 7847 |
| Thr | Pro | Leu | Ala | Arg | Ala | Ala | Trp | Glu | Thr | Ala | Arg | His | Thr | Pro | Val | |
| 2000 | | | | | 2005 | | | | | 2010 | | | | | 2015 | |
| aat | tcc | tgg | cta | ggc | aac | atc | atc | atg | tat | gcg | ccc | acc | ttg | tgg | gca | 7895 |
| Asn | Ser | Trp | Leu | Gly | Asn | Ile | Ile | Met | Tyr | Ala | Pro | Thr | Leu | Trp | Ala | |
| | | | | 2020 | | | | | 2025 | | | | | 2030 | | |
| agg | atg | atc | ctg | atg | act | cat | ttc | ttc | tcc | atc | ctt | cta | gct | cag | gaa | 7943 |
| Arg | Met | Ile | Leu | Met | Thr | His | Phe | Phe | Ser | Ile | Leu | Leu | Ala | Gln | Glu | |
| | | | 2035 | | | | | 2040 | | | | | 2045 | | | |
| caa | ctt | gaa | aaa | gcc | cta | gat | tgt | cag | atc | tac | ggg | gcc | tgt | tac | tcc | 7991 |

| | | | | | | | | | | | | | | | | | |
|------------|------------|-------------|------------|------------|------------|------------|------|------|------|------|------------|------------|------|------|------|------|--|
| Gln | Leu | Glu | Lys | Ala | Leu | Asp | Cys | Gln | Ile | Tyr | Gly | Ala | Cys | Tyr | Ser | | |
| | | 2050 | | | | | 2055 | | | | | 2060 | | | | | |
| att | gag | cca | ctt | gac | cta | cct | cag | atc | att | caa | cga | ctc | cac | ggc | ctt | 8039 | |
| Ile | Glu | Pro | Leu | Asp | Leu | Pro | Gln | Ile | Ile | Gln | Arg | Leu | His | Gly | Leu | | |
| | | 2065 | | | | | 2070 | | | | 2075 | | | | | | |
| agc | gca | ttt | tca | ctc | cat | agt | tac | tct | cca | ggt | gag | atc | aat | agg | gtg | 8087 | |
| Ser | Ala | Phe | Ser | Leu | His | Ser | Tyr | Ser | Pro | Gly | Glu | Ile | Asn | Arg | Val | | |
| | | 2080 | | | | | 2085 | | | | 2090 | | | | 2095 | | |
| gct | tca | tgc | ctc | agg | aaa | ctt | ggg | gta | ccg | ccc | ttg | cga | gtc | tgg | aga | 8135 | |
| Ala | Ser | Cys | Leu | Arg | Lys | Leu | Gly | Val | Pro | Pro | Leu | Arg | Val | Trp | Arg | | |
| | | | | 2100 | | | | | 2105 | | | | | 2110 | | | |
| cat | cgg | gcc | aga | agt | gtc | cgc | gct | agg | cta | ctg | tcc | cag | ggg | ggg | agg | 8183 | |
| His | Arg | Ala | Arg | Ser | Val | Arg | Ala | Arg | Leu | Leu | Ser | Gln | Gly | Gly | Arg | | |
| | | | 2115 | | | | | 2120 | | | | | 2125 | | | | |
| gct | gcc | act | tgt | ggc | aag | tac | ctc | ttc | aac | tgg | gca | gta | agg | acc | aag | 8231 | |
| Ala | Ala | Thr | Cys | Gly | Lys | Tyr | Leu | Phe | Asn | Trp | Ala | Val | Arg | Thr | Lys | | |
| | | | 2130 | | | | | 2135 | | | | | 2140 | | | | |
| ctc | aaa | ctc | act | cca | atc | ccg | gct | gcg | tcc | cag | ttg | gat | tta | tcc | agc | 8279 | |
| Leu | Lys | Leu | Thr | Pro | Ile | Pro | Ala | Ala | Ser | Gln | Leu | Asp | Leu | Ser | Ser | | |
| | | | 2145 | | | | | 2150 | | | | 2155 | | | | | |
| tgg | ttc | gtt | gct | ggt | tac | agc | ggg | gga | gac | ata | tat | cac | agc | ctg | tct | 8327 | |
| Trp | Phe | Val | Ala | Gly | Tyr | Ser | Gly | Gly | Asp | Ile | Tyr | His | Ser | Leu | Ser | | |
| | | | | | 2165 | | | | | 2170 | | | | | 2175 | | |
| cgt | gcc | cga | ccc | cgc | tgg | ttc | atg | tgg | tgc | cta | ctc | cta | ctt | tct | gta | 8375 | |
| Arg | Ala | Arg | Pro | Arg | Trp | Phe | Met | Trp | Cys | Leu | Leu | Leu | Leu | Ser | Val | | |
| | | | | | 2180 | | | | 2185 | | | | | 2190 | | | |
| ggg | gta | ggc | atc | tat | cta | ctc | ccc | aac | cga | tga | acggggagct | aaacactcca | 8428 | | | | |
| Gly | Val | Gly | Ile | Tyr | Leu | Leu | Pro | Asn | Arg | * | | | | | | | |
| | | | 2195 | | | | | 2200 | | | | | | | | | |
| ggccaatagg | ccatcctggt | ttttccctt | tttttttttc | tttttttttt | tttttttttt | tttttttttt | 8488 | | | | | | | | | | |
| tttttttttt | ttttctcctt | ttttttttcct | cttttttttc | ttttctttcc | tttggtggct | 8548 | | | | | | | | | | | |
| ccatcttagc | cctagtcacg | gctagctgtg | aaaggtccgt | gagccgcttg | actgcagaga | 8608 | | | | | | | | | | | |
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 10

| | | | | | | |
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| ccccctccc | gggagagcca | tagtggctctg | cggaaccggt | gagtacaccg | gaattgccag | 180 |
| gacgaccggg | tcctttcttg | gatcaaccgc | ctcaatgcct | ggagatttgg | gcgtgcccc | 240 |
| gcgagactgc | tagccgagta | gtgttggtgc | gcgaaaggcc | ttgtgggtact | gcctgatagg | 300 |
| gtgcttgca | gtgccccggg | aggctctgta | gaccgtgcac | catgagcacg | aatcctaaac | 360 |
| ctcaaagaaa | aaccaaagg | cgcgccatga | ttgaacaaga | tggattgcac | gcaggttctc | 420 |
| cggccgcttg | ggtggagagg | ctattcggtc | atgactgggc | acaacagaca | atcggtgctc | 480 |
| ctgatgccgc | cgtgttccgg | ctgtcagcgc | aggggcgccc | ggttcttttt | gtcaagaccg | 540 |
| acctgtccgg | tgccctgaat | gaactgcagg | acgaggcagc | gcggctatcg | tggctggcca | 600 |
| cgacgggcgt | tccttgcgca | gctgtgctcg | acgttgtcac | tgaagcggga | agggactggc | 660 |
| tgctattggg | cgaagtgcgg | gggcaggatc | tcctgtcatc | tcaccttgct | cctgccgaga | 720 |
| aagtatccat | catggctgat | gcaatgcggc | ggctgcatac | gcttgatccg | gctacctgcc | 780 |
| cattcgacca | ccaagcgaaa | catcgcatcg | agcgagcacg | tactcggatg | gaagccggtc | 840 |
| ttgtcgatca | ggatgatctg | gacgaagagc | atcaggggct | cgcgccagcc | gaactgttcg | 900 |
| ccaggctcaa | ggcgcgcatg | cccgaaggcg | aggatctcgt | cgtgacccat | ggcgaatgct | 960 |
| gcttgccgaa | tatcatgggtg | gaaaatggcc | gcttttctgg | attcatcgac | tgtggccggc | 1020 |
| ttgggtgtgg | ggaccgctat | caggacatag | cgttggctac | ccgtgatatt | gctgaagagc | 1080 |
| ttggcggcga | atgggctgac | cgcttctctg | tgctttacgg | tatcgccgct | cccgaattcg | 1140 |
| agcgcatcgc | cttctatcgc | cttcttgacg | agttcttctg | agttcgcgcc | cagatgttaa | 1200 |
| cagaccacaa | cgttttccct | ctagcgggat | caattccgcc | ccccccccta | acgttactgg | 1260 |
| ccgaagccgc | ttggaataag | gccggtgtgc | gtttgtctat | atgttatatt | ccaccatatt | 1320 |
| gccgtctttt | ggcaatgtga | gggcccgaa | acctggccct | gtcttcttga | cgagcattcc | 1380 |
| taggggtctt | tccccctctg | ccaaagggaat | gcaaggctctg | ttgaatgtcg | tgaaggaagc | 1440 |
| agttcctctg | gaagcttctt | gaagacaaac | aacgtctgta | gcgacccttt | gcaggcagcg | 1500 |
| gaacccccca | cctggcgaca | ggtgcctctg | cgccaaaag | ccacgtgtat | aagatacacc | 1560 |
| tgcaaaggcg | gcacaacccc | agtgccacgt | tgtgagttgg | atagttgtgg | aaagagtcaa | 1620 |
| atggctctcc | tcaagcgtat | tcaacaagg | gctgaaggat | gccagaagg | tacccattg | 1680 |
| tatgggatct | gatctggggc | ctcgggtcac | atgctttaca | tgtgtttagt | cgagggttaa | 1740 |
| aaacgtctag | gcccccgaa | ccacggggac | gtggttttcc | tttgaaaaac | acgataatac | 1800 |
| c atg gac cgg gag atg | gca gca tcg tgc gga ggc gcg gtt ttc gta ggt | | | | | 1849 |
| Met Asp Arg Glu Met | Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly | | | | | |
| 1 | 5 | 10 | 15 | | | |

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|---|------|-----|----|--|
| ctg ata ctc ttg acc ttg tca ccg cac tat aag ctg ttc ctc gct agg | 1897 | | | |
| Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg | | | | |
| 20 | 25 | 30 | | |
| ctc ata tgg tgg tta caa tat ttt atc acc agg gcc gag gca cac ttg | 1945 | | | |
| Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu | | | | |
| 35 | 40 | 45 | | |
| caa gtg tgg atc ccc ccc ctc aac gtt cgg ggg ggc cgc gat gcc gtc | 1993 | | | |
| Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val | | | | |
| 50 | 55 | 60 | | |
| atc ctc ctc acg tgc gcg atc cac cca gag cta atc ttt acc atc acc | 2041 | | | |
| Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr | | | | |
| 65 | 70 | 75 | 80 | |
| aaa atc ttg ctc gcc ata ctc ggt cca ctc atg gtg ctc cag gct ggt | 2089 | | | |
| Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly | | | | |
| 85 | 90 | 95 | | |
| ata acc aaa gtg ccg tac ttc gtg cgc gca cac ggg ctc att cgt gca | 2137 | | | |
| Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala | | | | |
| 100 | 105 | 110 | | |
| tgc atg ctg gtg cgg aag gtt gct ggg ggt cat tat gtc caa atg gct | 2185 | | | |
| Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala | | | | |
| 115 | 120 | 125 | | |
| ctc atg aag ttg gcc gca ctg aca ggt acg tac gtt tat gac cat ctc | 2233 | | | |
| Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu | | | | |
| 130 | 135 | 140 | | |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| acc Thr 145 | cca Pro | ctg Leu | cgg Arg | gac Asp | tgg Trp 150 | gcc Ala | cac His | gcg Ala | ggc Gly 155 | cta Leu 155 | cga Arg | gac Asp | ctt Leu | gcg Ala | gtg Val 160 | 2281 |
| gca Ala | gtt Val | gag Glu | ccc Pro | gtc Val 165 | gtc Val | ttc Phe | tct Ser | gat Asp | atg Met 170 | gag Glu | acc Thr | aag Lys | gtt Val | atc Ile 175 | acc Thr | 2329 |
| tgg Trp | ggg Gly | gca Ala | gac Asp 180 | acc Thr | gcg Ala | gcg Ala | tgt Cys | ggg Gly 185 | gac Asp | atc Ile | atc Ile | ttg Leu | ggc Gly 190 | ctg Leu | ccc Pro | 2377 |
| gtc Val | tcc Ser | gcc Ala 195 | cgc Arg | agg Arg | ggg Gly | agg Arg | gag Glu 200 | ata Ile | cat His | ctg Leu | gga Gly 205 | ccg Pro 205 | gca Ala | gac Asp | agc Ser | 2425 |
| ctt Leu | gaa Glu 210 | ggg Gly | cag Gln | ggg Gly | tgg Trp | cga Arg 215 | ctc Leu | ctc Leu | gcg Ala | cct Pro | att Ile 220 | acg Thr | gcc Ala | tac Tyr | tcc Ser | 2473 |
| caa Gln 225 | cag Gln | acg Thr | cga Arg | ggc Gly | cta Leu 230 | ctt Leu | ggc Gly | tgc Cys | atc Ile | atc Ile 235 | act Thr | agc Ser | ctc Leu | aca Thr | ggc Gly 240 | 2521 |
| cgg Arg | gac Asp | agg Arg | aac Asn | cag Gln 245 | gtc Val | gag Glu | ggg Gly | gag Glu | gtc Val 250 | caa Gln | gtg Val | gtc Val | tcc Ser | acc Thr 255 | gca Ala | 2569 |
| aca Thr | caa Gln | tct Ser | ttc Phe 260 | ctg Leu | gcg Ala | acc Thr | tgc Cys | gtc Val 265 | aat Asn | ggc Gly | gtg Val | tgt Cys | tgg Trp 270 | act Thr | gtc Val | 2617 |
| tat Tyr | cat His | ggt Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | atc Ile | 2665 |
| acc Thr 290 | caa Gln | atg Met | tac Tyr | acc Thr | aat Asn 295 | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | gcg Ala | 2713 |
| ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | gac Asp 320 | 2761 |
| ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | agg Arg | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | cgg Arg | 2809 |
| ggc Gly | gac Asp | agc Ser | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | agg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | ttg Leu | 2857 |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggt Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gaa Glu | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 |

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|---|------|
| ttc acg gac aac tcg tcc cct ccg gcc gta ccg cag aca ttc cag gtg | 3049 |
| Phe Thr Asp Asn Ser 405 Ser Pro Pro Ala Val 410 Pro Gln Thr Phe Gln Val 415 | |
| gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg ccg | 3097 |
| Ala His Leu His 420 Ala Pro Thr Gly Ser 425 Gly Lys Ser Thr Lys Val Pro 430 | |
| gct gcg tat gca gcc caa ggg tat aag gtg ctt gtc ctg aac ccg tcc | 3145 |
| Ala Ala Tyr 435 Ala Ala Gln Gly Tyr 440 Lys Val Leu Val Leu Asn Pro Ser 445 | |
| gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat ggt | 3193 |
| Val Ala 450 Ala Thr Leu Gly Phe 455 Gly Ala Tyr Met Ser 460 Lys Ala His Gly 465 | |
| atc gac cct aac atc aga acc ggg gta agg acc atc acc acg ggt gcc | 3241 |
| Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala 480 | |
| ccc atc acg tac tcc acc tat ggc aag ttt ctt gcc gac ggt ggt tgc | 3289 |
| Pro Ile Thr Tyr Ser 485 Thr Tyr Gly Lys Phe 490 Leu Ala Asp Gly Gly Cys 495 | |
| tct ggg ggc gcc tat gac atc ata ata tgt gat gag tgc cac tca act | 3337 |
| Ser Gly Gly Ala 500 Tyr Asp Ile Ile Ile Cys Asp Glu Cys His 510 Ser Thr 515 | |
| gac tcg acc act atc ctg ggc atc ggc aca gtc ctg gac caa gcg gag | 3385 |
| Asp Ser Thr 515 Thr Ile Leu Gly Ile 520 Gly Thr Val Leu Asp 525 Gln Ala Glu 530 | |
| acg gct gga gcg cga ctc gtc gtg ctc gcc acc gct acg cct ccg gga | 3433 |
| Thr Ala 530 Gly Ala Arg Leu Val 535 Val Leu Ala Thr Ala Thr Pro Pro Gly 540 | |
| tcg gtc acc gtg cca cat cca aac atc gag gag gtg gct ctg tcc agc | 3481 |
| Ser Val Thr Val Pro His 550 Pro Asn Ile Glu Glu 555 Val Ala Leu Ser 560 | |
| act gga gaa atc ccc ttt tat ggc aaa gcc atc ccc atc gag acc atc | 3529 |
| Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala 570 Ile Pro Ile Glu Thr 575 | |
| aag ggg ggg agg cac ctc att ttc tgc cat tcc aag aag aaa tgt gat | 3577 |
| Lys Gly Gly Arg His Leu Ile Phe Cys 585 His Ser Lys Lys Lys 590 Cys Asp 595 | |
| gag ctc gcc gcg aag ctg tcc ggc ctc gga ctc aat gct gta gca tat | 3625 |
| Glu Leu Ala 595 Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala 605 Val Ala Tyr 610 | |
| tac cgg ggc ctt gat gta tcc gtc ata cca act agc gga gac gtc att | 3673 |
| Tyr Arg 610 Gly Leu Asp Val Ser 615 Val Ile Pro Thr Ser 620 Gly Asp Val Ile 625 | |
| gtc gta gca acg gac gct cta atg acg ggc ttt acc ggc gat ttc gac | 3721 |
| Val Val Ala Thr Asp Ala 630 Leu Met Thr Gly Phe 635 Thr Gly Asp Phe Asp 640 | |
| tca gtg atc gac tgc aat aca tgt gtc acc cag aca gtc gac ttc agc | 3769 |
| Ser Val Ile Asp Cys 645 Asn Thr Cys Val Thr 650 Gln Thr Val Asp Phe 655 Ser 660 | |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggt Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | agc Ser | gtc Val | 4057 |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |
| cag Gln 770 | gca Ala | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gcc Ala | gcg Ala | tat Tyr | 4393 |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 |
| gga Gly | arg Xaa | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgc Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 |

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|--------------------|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe 920 | aaa Lys | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 |
| aca Thr 930 | gcc Ala | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 |
| tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | atc Ile 960 | 4681 |
| agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | ccc Pro | 4729 |
| gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe | aca Thr 985 | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | ctc Leu | 4777 |
| acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly | gga Gly 1005 | tgg Trp | gtg Val | gcc Ala | 4825 |
| gcc Ala 1010 | caa Gln | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser 1015 | gct Ala | gct Ala | tct Ser | gct Ala | ttc Phe 1020 | gta Val | ggc Gly | gcc Ala | ggc Gly | 4873 |
| atc Ile 1025 | gct Ala | gga Gly | gcg Ala | gct Ala | gtt Val 1030 | ggc Gly | agc Ser | ata Ile | ggc Gly | ctt Leu 1035 | ggg Gly | aag Lys | gtg Val | ctt Leu | gtg Val 1040 | 4921 |
| gat Asp | att Ile | ttg Leu | gca Ala | ggt Gly 1045 | tat Tyr | gga Gly | gca Ala | ggg Gly | gtg Val 1050 | gca Ala | ggc Gly | gcg Ala | ctc Leu | gtg Val 1055 | gcc Ala | 4969 |
| ttt Phe | aag Lys | gtc Val | atg Met 1060 | agc Ser | ggc Gly | gag Glu | atg Met | ccc Pro 1065 | tcc Ser | acc Thr | gag Glu | gac Asp 1070 | ctg Leu | gtt Val | aac Asn | 5017 |
| cta Leu | ctc Leu | cct Pro 1075 | gct Ala | atc Ile | ctc Leu | tcc Ser | cct Pro 1080 | ggc Gly | gcc Ala | cta Leu | gtc Val | gtc Val 1085 | ggg Gly | gtc Val | gtg Val | 5065 |
| tgc Cys 1090 | gca Ala | gcg Ala | ata Ile | ctg Leu | cgt Arg | cgg Arg 1095 | cac His | gtg Val | ggc Gly | cca Pro | ggg Gly 1100 | gag Glu | ggg Gly | gct Ala | gtg Val | 5113 |
| cag Gln 1105 | tgg Trp | atg Met | aac Asn | cgg Arg | ctg Leu 1110 | ata Ile | gcg Ala | ttc Phe | gct Ala | tcg Ser 1115 | cgg Arg | ggt Gly | aac Asn | cac His | gtc Val 1120 | 5161 |
| tcc Ser | ccc Pro | acg Thr | cac His | tat Tyr 1125 | gtg Val | cct Pro | gag Glu | agc Ser | gac Asp 1130 | gct Ala | gca Ala | gca Ala | cgt Arg | gtc Val 1135 | act Thr | 5209 |
| cag Gln | atc Ile | ctc Leu | tct Ser 1140 | agt Ser | ctt Leu | acc Thr | atc Ile | act Thr 1145 | cag Gln | ctg Leu | ctg Leu | aag Lys | agg Arg 1150 | ctt Leu | cac His | 5257 |
| cag Gln | tgg Trp | atc Ile 1155 | aac Asn | gag Glu | gac Asp | tgc Cys | tcc Ser 1160 | acg Thr | cca Pro | tgc Cys | tcc Ser | ggc Gly 1165 | tcg Ser | tgg Trp | cta Leu | 5305 |

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|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|
| aga Arg | gat Asp | gtt Val | tgg Trp | gat Asp | tgg Trp | ata Ile | tgc Cys | acg Thr | gtg Val | ttg Leu | act Thr | gat Asp | ttc Phe | aag Lys | acc Thr | 5353 |
| 1170 | | | | | | | | | | | | | | | | |
| tgg Trp | ctc Leu | cag Gln | tcc Ser | aag Lys | ctc Leu | ctg Leu | ccg Pro | cga Arg | ttg Leu | ccg Pro | gga Gly | gtc Val | ccc Pro | ttc Phe | ttc Phe | 5401 |
| 1185 | | | | | | | | | | | | | | | | |
| tca Ser | tgt Cys | caa Gln | cgt Arg | ggg Gly | tac Tyr | aag Lys | gga Gly | gtc Val | tgg Trp | cgg Arg | ggc Gly | gac Asp | ggc Gly | atc Ile | atg Met | 5449 |
| 1205 | | | | | | | | | | | | | | | | |
| caa Gln | acc Thr | acc Thr | tgc Cys | cca Pro | tgt Cys | gga Gly | gca Ala | cag Gln | atc Ile | acc Thr | gga Gly | cat His | gtg Val | aaa Lys | aac Asn | 5497 |
| 1220 | | | | | | | | | | | | | | | | |
| tgt Cys | tcc Ser | atg Met | agg Arg | atc Ile | gtg Val | ggg Gly | cct Pro | agg Arg | acc Thr | tgt Cys | agt Ser | aac Asn | acg Thr | tgg Trp | cat His | 5545 |
| 1235 | | | | | | | | | | | | | | | | |
| gga Gly | aca Thr | ttc Phe | ccc Pro | att Ile | aac Asn | gcg Ala | tac Tyr | acc Thr | acg Thr | ggc Gly | ccc Pro | tgc Cys | acg Thr | ccc Pro | tcc Ser | 5593 |
| 1250 | | | | | | | | | | | | | | | | |
| ccg Pro | gcg Ala | cca Pro | aat Asn | tat Tyr | tct Ser | agg Arg | gcg Ala | ctg Leu | tgg Trp | cgg Arg | gtg Val | gct Ala | gct Ala | gag Glu | gag Glu | 5641 |
| 1265 | | | | | | | | | | | | | | | | |
| tac Tyr | gtg Val | gag Glu | gtt Val | acg Thr | cgg Arg | gtg Val | ggg Gly | gat Asp | ttc Phe | cac His | tac Tyr | gtg Val | acg Thr | ggc Gly | atg Met | 5689 |
| 1285 | | | | | | | | | | | | | | | | |
| acc Thr | act Thr | gac Asp | aac Asn | gta Val | aag Lys | tgc Cys | ccg Pro | tgt Cys | cag Gln | gtt Val | ccg Pro | gcc Ala | ccc Pro | gaa Glu | ttc Phe | 5737 |
| 1300 | | | | | | | | | | | | | | | | |
| ttc Phe | aca Thr | gaa Glu | gtg Val | gat Asp | ggg Gly | gtg Val | cgg Arg | ttg Leu | cac His | agg Arg | tac Tyr | gct Ala | cca Pro | gcg Ala | tgc Cys | 5785 |
| 1315 | | | | | | | | | | | | | | | | |
| aaa Lys | ccc Pro | ctc Leu | cta Leu | cgg Arg | gag Glu | gag Glu | gtc Val | aca Thr | ttc Phe | ctg Leu | gtc Val | ggg Gly | ctc Leu | aat Asn | caa Gln | 5833 |
| 1330 | | | | | | | | | | | | | | | | |
| tac Tyr | ctg Leu | gtt Val | ggg Gly | tca Ser | cag Gln | ctc Leu | cca Pro | tgc Cys | gag Glu | ccc Pro | gaa Glu | ccg Pro | gac Asp | gta Val | gca Ala | 5881 |
| 1345 | | | | | | | | | | | | | | | | |
| gtg Val | ctc Leu | act Thr | tcc Ser | atg Met | ctc Leu | acc Thr | gac Asp | ccc Pro | tcc Ser | cac His | att Ile | acg Thr | gcg Ala | gag Glu | acg Thr | 5929 |
| 1365 | | | | | | | | | | | | | | | | |
| gct Ala | aag Lys | cgt Arg | agg Arg | ctg Leu | gcc Ala | agg Arg | gga Gly | tct Ser | ccc Pro | ccc Pro | tcc Ser | ttg Leu | gcc Ala | agc Ser | tca Ser | 5977 |
| 1380 | | | | | | | | | | | | | | | | |
| tca Ser | gct Ala | agc Ser | cag Gln | ctg Leu | tct Ser | gcg Ala | cct Pro | tcc Ser | ttg Leu | aag Lys | gca Ala | aca Thr | tgc Cys | act Thr | acc Thr | 6025 |
| 1395 | | | | | | | | | | | | | | | | |
| cgt Arg | cat His | gac Asp | tcc Ser | ccg Pro | gac Asp | gct Ala | gac Asp | ctc Leu | atc Ile | gag Glu | gcc Ala | aac Asn | ctc Leu | ctg Leu | tgg Trp | 6073 |
| 1410 | | | | | | | | | | | | | | | | |
| 1415 | | | | | | | | | | | | | | | | |
| 1420 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| cgg Arg 1425 | cag Gln | gag Glu | atg Met | ggc Gly 1430 | ggg Gly | aac Asn | atc Ile | acc Thr | cgc Arg | gtg Val 1435 | gag Glu | tca Ser | gaa Glu | aat Asn | aag Lys 1440 | 6121 |
| gta Val | gta Val | att Ile | ttg Leu | gac Asp 1445 | tct Ser | ttc Phe | gag Glu | ccg Pro | ctc Leu 1450 | caa Gln | gcg Ala | gag Glu | gag Glu | gat Asp 1455 | gag Glu | 6169 |
| agg Arg | gaa Glu | gta Val | tcc Ser 1460 | gtt Val | ccg Pro | gcg Ala | gag Glu | atc Ile 1465 | ctg Leu | cgg Arg | agg Arg | tcc Ser | agg Arg 1470 | aaa Lys | ttc Phe | 6217 |
| cct Pro | cga Arg | gcg Ala 1475 | atg Met | ccc Pro | ata Ile | tgg Trp | gca Ala 1480 | cgc Arg | ccg Pro | gat Asp | tac Tyr | aac Asn 1485 | cct Pro | cca Pro | ctg Leu | 6265 |
| ttr Xaa 1490 | gag Glu | tcc Ser | tgg Trp | aag Lys | gac Asp | ccg Pro 1495 | gac Asp | tac Tyr | gtc Val | cct Pro 1500 | cca Pro | gtg Val | gta Val | cac His | ggg Gly | 6313 |
| tgt Cys 1505 | cca Pro | ttg Leu | ccg Pro | cct Pro | gcc Ala 1510 | aag Lys | gcc Ala | cct Pro | ccg Pro | ata Ile 1515 | cca Pro | cct Pro | cca Pro | cgg Arg | agg Arg 1520 | 6361 |
| aag Lys | agg Arg | acg Thr | gtt Val 1525 | gtc Val | ctg Leu | tca Ser | gaa Glu | tct Ser | acc Thr 1530 | gtg Val | tct Ser | tct Ser | gcc Ala 1535 | ttg Leu | gcg Ala | 6409 |
| gag Glu | ctc Leu | gcc Ala 1540 | aca Thr | aag Lys | acc Thr | ttc Phe | ggc Gly 1545 | agc Ser | tcc Ser | gaa Glu | tcg Ser | tcg Ser | gcc Ala 1550 | gtc Val | gac Asp | 6457 |
| agc Ser | ggc Gly 1555 | acg Thr | gca Ala | acg Thr | gcc Ala | tct Ser | cct Pro 1560 | gac Asp | cag Gln | ccc Pro | tcc Ser | gac Asp 1565 | gac Asp | ggc Gly | gac Asp | 6505 |
| gcg Ala 1570 | gga Gly | tcc Ser | gac Asp | gtt Val | gag Glu | tcg Tyr 1575 | tac Tyr | tcc Ser | tcc Ser | atg Met | ccc Pro 1580 | ccc Pro | ctt Leu | gag Glu | ggg Gly | 6553 |
| gag Glu 1585 | ccg Pro | ggg Gly | gat Asp | ccc Pro | gat Asp 1590 | ctc Leu | agc Ser | gac Asp | ggg Gly 1595 | tct Ser | tgg Trp | tct Ser | acc Thr | gta Val | agc Ser 1600 | 6601 |
| gag Glu | gag Glu | gct Ala | agt Ser | gag Glu 1605 | gac Asp | gtc Val | gtc Val | tgc Cys 1610 | tgc Cys | tcg Ser | atg Met | tcc Ser | tac Tyr | aca Thr 1615 | tgg Trp | 6649 |
| aca Thr | ggc Gly | gcc Ala | ctg Leu 1620 | atc Ile | acg Thr | cca Pro | tgc Cys | gct Ala 1625 | gcg Ala | gag Glu | gaa Glu | acc Thr | aag Lys 1630 | ctg Leu | ccc Pro | 6697 |
| atc Ile | aat Asn | gca Ala 1635 | ctg Leu | agc Ser | aac Asn | tct Ser | ttg Leu 1640 | ctc Leu | cgt Arg | cac His | cac His | aac Asn 1645 | ttg Leu | gtc Val | tat Tyr | 6745 |
| gct Ala 1650 | aca Thr | aca Thr | tct Ser | cgc Arg | agc Ser | gca Ala 1655 | agc Ser | ctg Leu | cgg Arg | cag Gln | aag Lys 1660 | aag Lys | gtc Val | acc Thr | ttt Phe | 6793 |
| gac Asp 1665 | aga Arg | ctg Leu | cag Gln | gtc Val 1670 | ctg Leu | gac Asp | gac Asp | cac His | tac Tyr | cgg Arg 1675 | gac Asp | gtg Val | ctc Leu | aag Lys | gag Glu 1680 | 6841 |

| | |
|---|---------------------|
| atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag | 6889 |
| Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu | 1685 1690 1695 |
| gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc | 6937 |
| Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly | 1700 1705 1710 |
| tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac | 6985 |
| Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His | 1715 1720 1725 |
| atc cgc tcc gtg tgg aag gac ttg ctg gaa gac act gag aca cca att | 7033 |
| Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile | 1730 1735 1740 |
| gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag | 7081 |
| Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu | 1745 1750 1755 1760 |
| aag ggg ggc cgc aag cca gct cgc ctt atc gta ttc cca gat ttg ggg | 7129 |
| Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly | 1765 1770 1775 |
| gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc | 7177 |
| Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu | 1780 1785 1790 |
| cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga | 7225 |
| Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly | 1795 1800 1805 |
| cag cgg gtc gag ttc ctg gtg aat gcc tgg aaa gcg aag aaa tgc cct | 7273 |
| Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro | 1810 1815 1820 |
| atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag | 7321 |
| Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu | 1825 1830 1835 1840 |
| aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc | 7369 |
| Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala | 1845 1850 1855 |
| ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc | 7417 |
| Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile | 1860 1865 1870 |
| ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg | 7465 |
| Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg | 1875 1880 1885 |
| tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc aca | 7513 |
| Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr | 1890 1895 1900 |
| tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac | 7561 |
| Cys Tyr Leu Lys Ala Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp | 1905 1910 1915 1920 |
| tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc | 7609 |
| Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser | 1925 1930 1935 |

| | |
|---|------|
| gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala 1940 1945 1950 | 7657 |
| atg act aga tac tct gcc ccc cct ggg gac ccg ccc aaa cca gaa tac Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr 1955 1960 1965 | 7705 |
| gac ttg gag ttg ata aca tca tgc tcc tcc aat gtg tca gtc gcg cac Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His 1970 1975 1980 | 7753 |
| gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr 1985 1990 1995 2000 | 7801 |
| ccc ctt gcg cgg gct gcg tgg gag aca gct aga cac act cca gtc aat Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn 2005 2010 2015 | 7849 |
| tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg 2020 2025 2030 | 7897 |
| atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa caa Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln 2035 2040 2045 | 7945 |
| ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile 2050 2055 2060 | 7993 |
| gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser 2065 2070 2075 2080 | 8041 |
| gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala 2085 2090 2095 | 8089 |
| tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His 2100 2105 2110 | 8137 |
| cgg gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala 2115 2120 2125 | 8185 |
| gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu 2130 2135 2140 | 8233 |
| aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp 2145 2150 2155 2160 | 8281 |
| ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg 2165 2170 2175 | 8329 |
| gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Leu Ser Val Gly 2180 2185 2190 | 8377 |

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 Val Gly Ile Tyr Leu Leu Pro Asn Arg *
 2195 2200

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 <213> HCV

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 <223> Xaa is Lys or Arg

<221> VARIANT
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 <223> Xaa is Leu

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 35 40 45
 Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val
 50 55 60
 Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr
 65 70 75 80
 Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly
 85 90 95
 Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala
 100 105 110
 Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala
 115 120 125
 Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu
 130 135 140
 Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val
 145 150 155 160
 Ala Val Glu Pro Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr
 165 170 175
 Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu Pro
 180 185 190
 Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser
 195 200 205
 Leu Glu Gly Gln Gly Trp Arg Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly
 210 215 220 225 230 235 240
 Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly
 225 230 235 240
 Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala
 245 250 255
 Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val
 260 265 270
 Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile
 275 280 285
 Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala
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 Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp
 305 310 315 320
 20

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Tyr | Leu | Val | Thr | Arg | His | Ala | Asp | Val | Ile | Pro | Val | Arg | Arg | Arg |
| Gly | Asp | Ser | Arg | Gly | Ser | Leu | Leu | Ser | Pro | Arg | Pro | Val | Ser | Tyr | Leu |
| Lys | Gly | Ser | Ser | Gly | Gly | Pro | Leu | Leu | Cys | Pro | Ser | Gly | His | Ala | Val |
| Gly | Ile | Phe | Arg | Ala | Ala | Val | Cys | Thr | Arg | Gly | Val | Ala | Lys | Ala | Val |
| Asp | Phe | Val | Pro | Val | Glu | Ser | Met | Glu | Thr | Thr | Met | Arg | Ser | Pro | Val |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Phe | Thr | Asp | Asn | Ser | Ser | Pro | Pro | Ala | Val | Pro | Gln | Thr | Phe | Gln | Val |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | His | Leu | His | Ala | Pro | Thr | Gly | Ser | Gly | Lys | Ser | Thr | Lys | Val | Pro |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Ala | Tyr | Ala | Ala | Gln | Gly | Tyr | Lys | Val | Leu | Val | Leu | Asn | Pro | Ser |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Val | Ala | Ala | Thr | Leu | Gly | Phe | Gly | Ala | Tyr | Met | Ser | Lys | Ala | His | Gly |
| | 450 | | | | 455 | | | | | 460 | | | | | |
| Ile | Asp | Pro | Asn | Ile | Arg | Thr | Gly | Val | Arg | Thr | Ile | Thr | Thr | Gly | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Pro | Ile | Thr | Tyr | Ser | Thr | Tyr | Gly | Lys | Phe | Leu | Ala | Asp | Gly | Gly | Cys |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ser | Gly | Gly | Ala | Tyr | Asp | Ile | Ile | Ile | Cys | Asp | Glu | Cys | His | Ser | Thr |
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| Asp | Ser | Thr | Thr | Ile | Leu | Gly | Ile | Gly | Thr | Val | Leu | Asp | Gln | Ala | Glu |
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| Thr | Ala | Gly | Ala | Arg | Leu | Val | Val | Leu | Ala | Thr | Ala | Thr | Pro | Pro | Gly |
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| Ser | Val | Thr | Val | Pro | His | Pro | Asn | Ile | Glu | Glu | Val | Ala | Leu | Ser | Ser |
| 545 | | | | | 550 | | | | 555 | | | | | | 560 |
| Thr | Gly | Glu | Ile | Pro | Phe | Tyr | Gly | Lys | Ala | Ile | Pro | Ile | Glu | Thr | Ile |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Lys | Gly | Gly | Arg | His | Leu | Ile | Phe | Cys | His | Ser | Lys | Lys | Lys | Cys | Asp |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Glu | Leu | Ala | Ala | Lys | Leu | Ser | Gly | Leu | Gly | Leu | Asn | Ala | Val | Ala | Tyr |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Tyr | Arg | Gly | Leu | Asp | Val | Ser | Val | Ile | Pro | Thr | Ser | Gly | Asp | Val | Ile |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Val | Val | Ala | Thr | Asp | Ala | Leu | Met | Thr | Gly | Phe | Thr | Gly | Asp | Phe | Asp |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Ser | Val | Ile | Asp | Cys | Asn | Thr | Cys | Val | Thr | Gln | Thr | Val | Asp | Phe | Ser |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Leu | Asp | Pro | Thr | Phe | Thr | Ile | Glu | Thr | Thr | Thr | Val | Pro | Gln | Asp | Ala |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Val | Ser | Arg | Ser | Gln | Arg | Arg | Gly | Arg | Thr | Gly | Arg | Gly | Arg | Met | Gly |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Ile | Tyr | Arg | Phe | Val | Thr | Pro | Gly | Glu | Arg | Pro | Ser | Gly | Met | Phe | Asp |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Ser | Ser | Val | Leu | Cys | Glu | Cys | Tyr | Asp | Ala | Gly | Cys | Ala | Trp | Tyr | Glu |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Leu | Thr | Pro | Ala | Glu | Thr | Ser | Val | Arg | Leu | Arg | Ala | Tyr | Leu | Asn | Thr |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Pro | Gly | Leu | Pro | Val | Cys | Gln | Asp | His | Leu | Glu | Phe | Trp | Glu | Ser | Val |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Thr | Gly | Leu | Thr | His | Ile | Asp | Ala | His | Phe | Leu | Ser | Gln | Thr | Lys |
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| Gln | Ala | Gly | Asp | Asn | Phe | Pro | Tyr | Leu | Val | Ala | Tyr | Gln | Ala | Thr | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Cys | Ala | Arg | Ala | Gln | Ala | Pro | Pro | Pro | Ser | Trp | Asp | Gln | Met | Trp | Lys |
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| Cys | Leu | Ile | Arg | Leu | Lys | Pro | Thr | Leu | His | Gly | Pro | Thr | Pro | Leu | Leu |
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| Tyr | Arg | Leu | Gly | Ala | Val | Gln | Asn | Glu | Val | Thr | Thr | Thr | His | Pro | Ile |
| | | | 820 | | | | | 825 | | | | | 830 | | |

Thr Lys Tyr Ile Met Ala Cys Met Ser Ala Asp Leu Glu Val Val Thr
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 Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Tyr
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 Cys Leu Thr Thr Gly Ser Val Val Ile Val Gly Arg Ile Ile Leu Ser
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 Gly Xaa Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Arg Glu Phe
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 Asp Glu Met Glu Glu Cys Ala Ser His Leu Pro Tyr Ile Glu Gly
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 Met Gln Leu Ala Glu Gln Phe Lys Gln Lys Ala Ile Gly Leu Leu Gln
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 Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln
 1330 1335 1340

Tyr Leu Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala
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Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr
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Xaa Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly
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Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly
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Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His
1715 1720 1725
Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile
1730 1735 1740
Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu
1745 1750 1755 1760
Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly
1765 1770 1775
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu
1780 1785 1790
Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly
1795 1800 1805
Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro
1810 1815 1820
Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu
1825 1830 1835 1840
Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala
1845 1850 1855

Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile
 1860 1865 1870
 Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg
 1875 1880 1885
 Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr
 1890 1895 1900
 Cys Tyr Leu Lys Ala Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp
 1905 1910 1915 1920
 Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser
 1925 1930 1935
 Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala
 1940 1945 1950
 Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr
 1955 1960 1965
 Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His
 1970 1975 1980
 Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr
 1985 1990 1995 2000
 Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn
 2005 2010 2015
 Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg
 2020 2025 2030
 Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln
 2035 2040 2045
 Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile
 2050 2055 2060
 Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser
 2065 2070 2075 2080
 Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala
 2085 2090 2095
 Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His
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 Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala
 2115 2120 2125
 Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu
 2130 2135 2140
 Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp
 2145 2150 2155 2160
 Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg
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| tcttcacgca | gaaagcgtct | agccatggcg | ttagtatgag | tgtcgtgcag | cctccaggac | 120 |
| ccccctccc | gggagagcca | tagtggtctg | cggaaccggt | gagtacaccg | gaattgccag | 180 |
| gacgaccggg | tcctttcttg | gatcaaccgg | ctcaatgcct | ggagatttgg | gcgtgcccc | 240 |
| gcgagactgc | tagccgagta | gtgttggttc | gcgaaaggcc | ttgtggtact | gcctgatagg | 300 |
| gtgcttgca | gtgccccggg | aggtctcgta | gaccgtgcac | catgagcacg | aatcctaacc | 360 |
| ctcaaagaaa | aaccaaaggg | cgcgccatga | ttgaacaaga | tggattgcac | gcaggttctc | 420 |
| cggccgcttg | ggtggagagg | ctattcggct | atgactgggc | gcaacagaca | atcggctgct | 480 |

| | | | | | | |
|-----------------------|-------------|---|------------|------------|-------------|------|
| ctgatgccgc | cgtgttccgg | ctgtcagcgc | aggggcgccc | ggttcttttt | gtcaagaccg | 540 |
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| aagtatccat | catggctgat | gcaatgcggc | ggctgcatac | gcttgatccg | gctacctgcc | 780 |
| cattcgacca | ccaagcgaag | catcgcatcg | agcgagcacg | tactcggatg | gaagccggtc | 840 |
| ttgtcgatca | ggatgatctg | gacgaagagc | atcaggggct | cgcgccagcc | gaactgttcg | 900 |
| ccaggctcaa | ggcgcgcatg | cccgcaggcg | aggatctcgt | cgtgacccat | ggcgaatgcct | 960 |
| gcttgccgaa | tatcatgggtg | gaaaatggcc | gcttttctgg | attcatcgac | tgtggccggc | 1020 |
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| tgcaaaggcg | gcacaacccc | agtgccacgt | tgtgagttgg | atagttgtgg | aaagagtcaa | 1620 |
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| taatggatct | gatctggggc | ctcgggtgcac | atgctttaca | tgtgtttagt | cgagggttaga | 1740 |
| aaacgtctag | gcccccgaa | ccacggggac | gtggttttcc | tttgaaaaac | acgataatac | 1800 |
| c atg gac cgg gag atg | | gca gca tcg tgc gga ggc gcg gtt ttc gta ggt | | | | 1849 |
| Met Asp Arg Glu Met | | Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly | | | | |
| 1 | 5 | 10 | 15 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctg | ata | ctc | ttg | acc | ttg | tca | ccg | cac | tat | aag | ctg | ttc | ctc | gct | agg | 1897 |
| Leu | Ile | Leu | Leu | Thr | Leu | Ser | Pro | His | Tyr | Lys | Leu | Phe | Leu | Ala | Arg | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctc | ata | tgg | tgg | tta | caa | tat | ttt | atc | acc | agg | gcc | gag | gca | cac | ttg | 1945 |
| Leu | Ile | Trp | Trp | Leu | Gln | Tyr | Phe | Ile | Thr | Arg | Ala | Glu | Ala | His | Leu | |
| | | 35 | | | | 40 | | | | | 45 | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| caa | gtg | tgg | atc | ccc | ccc | ctc | aac | gtt | cgg | ggg | ggc | cgc | gat | gcc | gtc | 1993 |
| Gln | Val | Trp | Ile | Pro | Pro | Leu | Asn | Val | Arg | Gly | Gly | Arg | Asp | Ala | Val | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| atc | ctc | ctc | acg | tgc | gcg | atc | cac | cca | gag | cta | atc | ttt | acc | atc | acc | 2041 |
| Ile | Leu | Leu | Thr | Cys | Ala | Ile | His | Pro | Glu | Leu | Ile | Phe | Thr | Ile | Thr | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| aaa | atc | ttg | ctc | gcc | ata | ctc | ggt | cca | ctc | atg | gtg | ctc | cag | gct | ggt | 2089 |
| Lys | Ile | Leu | Leu | Ala | Ile | Leu | Gly | Pro | Leu | Met | Val | Leu | Gln | Ala | Gly | |
| | | | | 85 | | | | 90 | | | | | | 95 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ata | acc | aaa | gtg | ccg | tac | ttc | gtg | cgc | gca | cac | ggg | ctc | att | cgt | gca | 2137 |
| Ile | Thr | Lys | Val | Pro | Tyr | Phe | Val | Arg | Ala | His | Gly | Leu | Ile | Arg | Ala | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| tgc | atg | ctg | gtg | cgg | aag | gtt | gct | ggg | ggt | cat | tat | gtc | caa | atg | gct | 2185 |
| Cys | Met | Leu | Val | Arg | Lys | Val | Ala | Gly | Gly | His | Tyr | Val | Gln | Met | Ala | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctc | atg | aag | ttg | gcc | gca | ctg | aca | ggt | acg | tac | gtt | tat | gac | cat | ctc | 2233 |
| Leu | Met | Lys | Leu | Ala | Ala | Leu | Thr | Gly | Thr | Tyr | Val | Tyr | Asp | His | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| acc | cca | ctg | cgg | gac | tgg | gcc | cac | gcg | ggc | cta | cga | gac | ctt | gcg | gtg | 2281 |
| Thr | Pro | Leu | Arg | Asp | Trp | Ala | His | Ala | Gly | Leu | Arg | Asp | Leu | Ala | Val | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| gca | gtt | gag | ccc | gtc | gtc | ttc | tct | gat | atg | gag | acc | aag | gtt | atc | acc | 2329 |
| Ala | Val | Glu | Pro | Val | Val | Phe | Ser | Asp | Met | Glu | Thr | Lys | Val | Ile | Thr | |
| | | | | | | | | | | 25 | | | | | | |

| 165 | | | | | | | | 170 | | | | 175 | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--|
| tgg | ggg | gca | gac | acc | gcg | gcg | tgt | ggg | gac | atc | atc | ttg | ggc | ctg | ccc | 2377 | |
| Trp | Gly | Ala | Asp 180 | Thr | Ala | Ala | Cys | Gly 185 | Asp | Ile | Ile | Leu | Gly 190 | Leu | Pro | | |
| gtc | tcc | gcc | cgc | agg | ggg | agg | gag | ata | cat | ctg | gga | ccg | gca | gac | agc | 2425 | |
| Val | Ser | Ala 195 | Arg | Arg | Gly | Arg | Glu 200 | Ile | His | Leu | Gly | Pro 205 | Ala | Asp | Ser | | |
| ctt | gaa | ggg | cag | ggg | tgg | cga | ctc | ctc | gcg | cct | att | acg | gcc | tac | tcc | 2473 | |
| Leu | Glu 210 | Gly | Gln | Gly | Trp | Arg 215 | Leu | Leu | Ala | Pro | Ile 220 | Thr | Ala | Tyr | Ser | | |
| caa | cag | acg | cga | ggc | cta | ctt | ggc | tgc | atc | atc | act | agc | ctc | aca | ggc | 2521 | |
| Gln 225 | Gln | Thr | Arg | Gly | Leu 230 | Leu | Gly | Cys | Ile | Ile 235 | Thr | Ser | Leu | Thr | Gly 240 | | |
| cgg | gac | agg | aac | cag | gtc | gag | ggg | gag | gtc | caa | gtg | gtc | tcc | acc | gca | 2569 | |
| Arg | Asp | Arg | Asn | Gln 245 | Val | Glu | Gly | Glu | Val 250 | Gln | Val | Val | Ser | Thr 255 | Ala | | |
| aca | caa | tct | ttc | ctg | gcg | acc | tgc | gtc | aat | ggc | gtg | tgt | tgg | act | gtc | 2617 | |
| Thr | Gln | Ser | Phe 260 | Leu | Ala | Thr | Cys | Val 265 | Asn | Gly | Val | Cys | Trp 270 | Thr | Val | | |
| tat | cat | ggt | gcc | ggc | tca | aag | acc | ctt | gcc | ggc | cca | aag | ggc | cca | atc | 2665 | |
| Tyr | His | Gly 275 | Ala | Gly | Ser | Lys | Thr 280 | Leu | Ala | Gly | Pro | Lys 285 | Gly | Pro | Ile | | |
| acc | caa | atg | tac | acc | aat | gtg | gac | cag | gac | ctc | gtc | ggc | tgg | caa | gcg | 2713 | |
| Thr | Gln 290 | Met | Tyr | Thr | Asn | Val 295 | Asp | Gln | Asp | Leu | Val 300 | Gly | Trp | Gln | Ala | | |
| ccc | ccc | ggg | gcg | cgt | tcc | ttg | aca | cca | tgc | acc | tgc | ggc | agc | tcg | gac | 2761 | |
| Pro 305 | Pro | Gly | Ala | Arg | Ser 310 | Leu | Thr | Pro | Cys | Thr 315 | Cys | Gly | Ser | Ser | Asp 320 | | |
| ctt | tac | ttg | gtc | acg | aag | cat | gcc | gat | gtc | att | ccg | gtg | cgc | cgg | cgg | 2809 | |
| Leu | Tyr | Leu | Val | Thr 325 | Lys | His | Ala | Asp | Val 330 | Ile | Pro | Val | Arg | Arg 335 | Arg | | |
| ggc | gac | agc | agg | ggg | agc | cta | ctc | tcc | ccc | cgg | ccc | gtc | tcc | tac | ttg | 2857 | |
| Gly | Asp | Ser | Arg 340 | Gly | Ser | Leu | Leu | Ser 345 | Pro | Arg | Pro | Val | Ser 350 | Tyr | Leu | | |
| aag | ggc | tct | tcg | ggc | ggt | cca | ctg | ctc | tgc | ccc | tcg | ggg | cac | gct | gtg | 2905 | |
| Lys | Gly | Ser 355 | Ser | Gly | Gly | Pro | Leu 360 | Leu | Cys | Pro | Ser | Gly 365 | His | Ala | Val | | |
| ggc | atc | ttt | cgg | gct | gcc | gtg | tgc | acc | cga | ggg | gtt | gcg | aag | gcg | gtg | 2953 | |
| Gly | Ile 370 | Phe | Arg | Ala | Ala | Val 375 | Cys | Thr | Arg | Gly | Val 380 | Ala | Lys | Ala | Val | | |
| gac | ttt | gta | ccc | gtc | gag | tct | atg | gaa | acc | act | atg | cgg | tcc | ccg | gtc | 3001 | |
| Asp 385 | Phe | Val | Pro | Val | Glu 390 | Ser | Met | Glu | Thr | Thr 395 | Met | Arg | Ser | Pro | Val 400 | | |
| ttc | acg | gac | aac | tcg | tcc | cct | ccg | gcc | gta | ccg | cag | aca | ttc | cag | gtg | 3049 | |
| Phe | Thr | Asp | Asn | Ser 405 | Ser | Pro | Pro | Ala | Val 410 | Pro | Gln | Thr | Phe | Gln 415 | Val | | |
| gcc | cat | cta | cac | gcc | cct | act | ggt | agc | ggc | aag | agc | act | aag | gtg | ccg | 3097 | |
| Ala | His | Leu | His | Ala | Pro | Thr | Gly | Ser | Gly | Lys 26 | Ser | Thr | Lys | Val | Pro | | |

| 420 | | | | 425 | | | | 430 | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggt Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggt Gly | 3193 |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggt Gly | gcc Ala 480 | 3241 |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggt Gly | ggt Gly 495 | tgc Cys | 3289 |
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile 505 | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 |
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 |
| aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgt Cys | gat Asp | 3577 |
| gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | tat Tyr | 3625 |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val 650 | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly | agg Arg | act Thr | ggt Gly 27 | agg Arg | ggc Gly | agg Arg | atg Met | ggc Gly | 3865 |

| 675 | | | | | 680 | | | | | 685 | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|--|--|--|--|
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 | | | | |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys 710 | gag Glu | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 | | | | |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 | | | | |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | ggc Gly | gtc Val | 4057 | | | | |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 | | | | |
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 | | | | |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln 790 | gct Ala | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 | | | | |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 | | | | |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 | | | | |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 | | | | |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gcc Ala | gcg Ala | tat Tyr | 4393 | | | | |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 | | | | |
| gga Gly | agg Arg | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 | | | | |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgc Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 | | | | |
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 | | | | |
| aca Thr | gcc Ala | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu | gct Ala | gct Ala | gct Ala | ccc Pro 28 | gtg Val | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 | | | | |

| 930 | 935 | 940 | |
|---|-----|-----|------|
| tgg cgg acc ctc gaa gcc ttc tgg gcg aag cat atg tgg aat ttc atc Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile 945 950 955 960 | | | 4681 |
| agc ggg ata caa tat tta gca ggc ttg tcc act ctg cct ggc aac ccc Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro 965 970 975 | | | 4729 |
| gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc Ala Ile Ala Ser Leu Met Ala Phe Thr 985 Ala Ser Ile Thr Ser Pro Leu 980 | | | 4777 |
| acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala 995 1000 1005 | | | 4825 |
| gcc caa ctt gct cct ccc agc gct gct tcc gct ttc gta ggc gcc ggc Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly 1010 1015 1020 | | | 4873 |
| atc gct gga gcg gct gtt ggc agc ata ggc ctt ggg aag gtg ctt gtg Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val 1025 1030 1035 1040 | | | 4921 |
| gat att ttg gca ggt tat gga gca ggg gtg gca ggc gcg ctc gtg gcc Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala 1045 1050 1055 | | | 4969 |
| ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt aac Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn 1060 1065 1070 | | | 5017 |
| cta ctc cct gct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val 1075 1080 1085 | | | 5065 |
| tgc gca gcg ata ctg cgt cgg cac gtg ggc cca ggg gag ggg gct gtg Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val 1090 1095 1100 | | | 5113 |
| cag tgg atg aac cgg ctg ata gcg ttc gct tcg cgg ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105 1110 1115 1120 | | | 5161 |
| tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr 1125 1130 1135 | | | 5209 |
| cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt cac Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His 1140 1145 1150 | | | 5257 |
| cag tgg atc aac gag gac tgc tcc acg cca tgc tcc ggc tcg tgg cta Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu 1155 1160 1165 | | | 5305 |
| aga gat gtt tgg gat tgg ata tgc acg gtg ttg act gat ttc aag gcc Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Ala 1170 1175 1180 | | | 5353 |
| tgg ctc cag tcc aag ctc ctg ccg cga ttg ccg gga gtc ccc ttc ttc Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe 29 | | | 5401 |

| 1185 | | 1190 | | 1195 | | 1200 | |
|---|------|------|--|------|--|------|------|
| tca tgt caa cgt ggg tac aag gga gtc tgg cgg ggc gac ggc atc atg | 5449 | | | | | | |
| Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met | | | | | | | |
| | | 1205 | | 1210 | | 1215 | |
| caa acc acc tgc cca tgt gga gca cag atc acc gga cat gtg aaa aac | 5497 | | | | | | |
| Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn | | | | | | | |
| | | 1220 | | 1225 | | 1230 | |
| tgt tcc atg agg atc gtg ggg cct agg acc tgt agt aac acg tgg cat | 5545 | | | | | | |
| Cys Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His | | | | | | | |
| | | 1235 | | 1240 | | 1245 | |
| gga aca ttc ccc att aac gcg tac acc acg ggc ccc tgc acg ccc tcc | 5593 | | | | | | |
| Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Ser | | | | | | | |
| | | 1250 | | 1255 | | 1260 | |
| ccg gcg cca aat tat tct agg gcg ctg tgg cgg gtg gct gct gag gag | 5641 | | | | | | |
| Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu | | | | | | | |
| | | 1265 | | 1270 | | 1275 | 1280 |
| tac gtg gag gtt acg cga gtg ggg gat ttc cac tac gtg acg ggc atg | 5689 | | | | | | |
| Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met | | | | | | | |
| | | 1285 | | 1290 | | 1295 | |
| acc act gac aac gta aag tgc ccg tgt cag gtt ccg gcc ccc gaa ttc | 5737 | | | | | | |
| Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val Pro Ala Pro Glu Phe | | | | | | | |
| | | 1300 | | 1305 | | 1310 | |
| ttc aca gaa gtg gat ggg gtg cgg ttg cac agg tac gct cca gcg tgc | 5785 | | | | | | |
| Phe Thr Glu Val Asp Gly Val Arg Leu His Arg Tyr Ala Pro Ala Cys | | | | | | | |
| | | 1315 | | 1320 | | 1325 | |
| aaa ccc ctc cta cgg gag gag gtc aca ttc ctg gtc ggg ctc aat caa | 5833 | | | | | | |
| Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln | | | | | | | |
| | | 1330 | | 1335 | | 1340 | |
| tac ctg gtt ggg tca cag ctc cca tgc gag ccc gaa ctg gac gta gca | 5881 | | | | | | |
| Tyr Leu Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Leu Asp Val Ala | | | | | | | |
| | | 1345 | | 1350 | | 1355 | 1360 |
| gtg ctc act tcc atg ctc acc gac ccc tcc cac att acg gcg gag acg | 5929 | | | | | | |
| Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr | | | | | | | |
| | | 1365 | | 1370 | | 1375 | |
| gct aag cgt agg ctg gcc agg gga tct ccc ccc tcc ttg gcc agc tca | 5977 | | | | | | |
| Ala Lys Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Leu Ala Ser Ser | | | | | | | |
| | | 1380 | | 1385 | | 1390 | |
| tca gct agc cag ctg tct gcg cct tcc ttg aag gca aca tgc act acc | 6025 | | | | | | |
| Ser Ala Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Thr | | | | | | | |
| | | 1395 | | 1400 | | 1405 | |
| cgt cat gac tcc ccg gac gct gac ctc atc gag gcc aac ctc ctg tgg | 6073 | | | | | | |
| Arg His Asp Ser Pro Asp Ala Asp Leu Ile Glu Ala Asn Leu Leu Trp | | | | | | | |
| | | 1410 | | 1415 | | 1420 | |
| cgg cag gag atg ggc ggg aac atc acc cgc gtg gag tca gaa aat aag | 6121 | | | | | | |
| Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys | | | | | | | |
| | | 1425 | | 1430 | | 1435 | 1440 |
| gta gta att ttg gac tct ttc gag ccg ctc caa gcg gag gag gat gag | 6169 | | | | | | |
| Val Val Ile Leu Asp Ser Phe Glu Pro Leu Gln Ala Glu Glu Asp Glu | | | | | | | |

| 1445 | | | | | | | | | | | | | | | | 1450 | | | | | | | | | | | | | | | | 1455 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| agg | gaa | gta | tcc | gtt | ccg | gcg | gag | atc | ctg | cgg | agg | tcc | agg | aaa | ttc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 1700 | | | | | 1705 | | | | | 1710 | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| tat | ggg | gca | aag | gac | gtc | cgg | aac | cta | tcc | agc | aag | gcc | gtt | aac | cac | 6985 |
| Tyr | Gly | Ala | Lys | Asp | Val | Arg | Asn | Leu | Ser | Ser | Lys | Ala | Val | Asn | His | |
| | | 1715 | | | | | 1720 | | | | | 1725 | | | | |
| atc | cgc | tcc | gtg | tgg | aag | gac | ttg | ctg | gaa | gac | act | gag | aca | cca | att | 7033 |
| Ile | Arg | Ser | Val | Trp | Lys | Asp | Leu | Leu | Glu | Asp | Thr | Glu | Thr | Pro | Ile | |
| | | 1730 | | | | 1735 | | | | | 1740 | | | | | |
| gac | acc | acc | atc | atg | gca | aaa | aat | gag | gtt | ttc | tgc | gtc | caa | cca | gag | 7081 |
| Asp | Thr | Thr | Ile | Met | Ala | Lys | Asn | Glu | Val | Phe | Cys | Val | Gln | Pro | Glu | |
| | | | | | 1750 | | | | | 1755 | | | | | 1760 | |
| aag | ggg | ggc | cgc | aag | cca | gct | cgc | ctt | atc | gta | ttc | cca | gat | ttg | ggg | 7129 |
| Lys | Gly | Gly | Arg | Lys | Pro | Ala | Arg | Leu | Ile | Val | Phe | Pro | Asp | Leu | Gly | |
| | | | | 1765 | | | | | 1770 | | | | | 1775 | | |
| gtt | cgt | gtg | tgc | gag | aaa | atg | gcc | ctt | tac | gat | gtg | gtc | tcc | acc | ctc | 7177 |
| Val | Arg | Val | Cys | Glu | Lys | Met | Ala | Leu | Tyr | Asp | Val | Val | Ser | Thr | Leu | |
| | | | 1780 | | | | | 1785 | | | | | 1790 | | | |
| cct | cag | gcc | gtg | atg | ggc | tct | tca | tac | gga | ttc | caa | tac | tct | cct | gga | 7225 |
| Pro | Gln | Ala | Val | Met | Gly | Ser | Ser | Tyr | Gly | Phe | Gln | Tyr | Ser | Pro | Gly | |
| | | 1795 | | | | | 1800 | | | | | 1805 | | | | |
| cag | cgg | gtc | gag | ttc | ctg | gtg | aat | gcc | tgg | aaa | gcg | aag | aaa | tgc | cct | 7273 |
| Gln | Arg | Val | Glu | Phe | Leu | Val | Asn | Ala | Trp | Lys | Ala | Lys | Lys | Cys | Pro | |
| | 1810 | | | | | 1815 | | | | | 1820 | | | | | |
| atg | ggc | ttc | gca | tat | gac | acc | cgc | tgt | ttt | gac | tca | acg | gtc | act | gag | 7321 |
| Met | Gly | Phe | Ala | Tyr | Asp | Thr | Arg | Cys | Phe | Asp | Ser | Thr | Val | Thr | Glu | |
| | | | | | 1830 | | | | | 1835 | | | | | 1840 | |
| aat | gac | atc | cgt | gtt | gag | gag | tca | atc | tac | caa | tgt | tgt | gac | ttg | gcc | 7369 |
| Asn | Asp | Ile | Arg | Val | Glu | Glu | Ser | Ile | Tyr | Gln | Cys | Cys | Asp | Leu | Ala | |
| | | | | 1845 | | | | | 1850 | | | | | 1855 | | |
| ccc | gaa | gcc | aga | cag | gcc | ata | agg | tcg | ctc | aca | gag | cgg | ctt | tac | atc | 7417 |
| Pro | Glu | Ala | Arg | Gln | Ala | Ile | Arg | Ser | Leu | Thr | Glu | Arg | Leu | Tyr | Ile | |
| | | | 1860 | | | | | 1865 | | | | | 1870 | | | |
| ggg | ggc | ccc | ctg | act | aat | tct | aaa | ggg | cag | aac | tgc | ggc | tat | cgc | cgg | 7465 |
| Gly | Gly | Pro | Leu | Thr | Asn | Ser | Lys | Gly | Gln | Asn | Cys | Gly | Tyr | Arg | Arg | |
| | | 1875 | | | | | 1880 | | | | | 1885 | | | | |
| tgc | cgc | gcg | agc | ggt | gta | ctg | acg | acc | agc | tgc | ggt | aat | acc | ctc | aca | 7513 |
| Cys | Arg | Ala | Ser | Gly | Val | Leu | Thr | Thr | Ser | Cys | Gly | Asn | Thr | Leu | Thr | |
| | | 1890 | | | | 1895 | | | | | 1900 | | | | | |
| tgt | tac | ttg | aag | gcc | gct | gcg | gcc | tgt | cga | gct | gcg | aag | ctc | cag | gac | 7561 |
| Cys | Tyr | Leu | Lys | Ala | Ala | Ala | Ala | Cys | Arg | Ala | Ala | Lys | Leu | Gln | Asp | |
| | | | | 1910 | | | | | | 1915 | | | | | 1920 | |
| tgc | acg | atg | ctc | gta | tgc | gga | gac | gac | ctt | gtc | gtt | atc | tgt | gaa | agc | 7609 |
| Cys | Thr | Met | Leu | Val | Cys | Gly | Asp | Asp | Leu | Val | Val | Ile | Cys | Glu | Ser | |
| | | | | 1925 | | | | | 1930 | | | | | 1935 | | |
| gcg | ggg | acc | caa | gag | gac | gag | gcg | agc | cta | cgg | gcc | ttc | acg | gag | gct | 7657 |
| Ala | Gly | Thr | Gln | Glu | Asp | Glu | Ala | Ser | Leu | Arg | Ala | Phe | Thr | Glu | Ala | |
| | | | 1940 | | | | | 1945 | | | | | 1950 | | | |
| atg | act | aga | tac | tct | gcc | ccc | cct | ggg | gac | ccg | ccc | aaa | cca | gaa | tac | 7705 |
| Met | Thr | Arg | Tyr | Ser | Ala | Pro | Pro | Gly | Asp | Pro | Pro | Lys | Pro | Glu | Tyr | |
| | | | | | | | | | | 32 | | | | | | |

| 1955 | | | | | 1960 | | | | | 1965 | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| gac Asp 1970 | ttg Leu | gag Glu | ttg Leu | ata Ile | aca Thr | tca Ser 1975 | tgc Cys | tcc Ser | tcc Ser | aat Asn | gtg Val 1980 | tca Ser | gtc Val | gcg Ala | cac His | 7753 |
| gat Asp 1985 | gca Ala | tct Ser | ggc Gly | aaa Lys | agg Arg 1990 | gtg Val | tac Tyr | tat Tyr | ctc Leu | acc Thr 1995 | cgt Arg | gac Asp | ccc Pro | acc Thr | acc Thr 2000 | 7801 |
| ccc Pro | ctt Leu | gcg Ala | cgg Arg | gct Ala 2005 | gcg Ala | tgg Trp | gag Glu | aca Thr | gct Ala 2010 | aga Arg | cac His | act Thr | cca Pro | gtc Val 2015 | aat Asn | 7849 |
| tcc Ser | tgg Trp | cta Leu | ggc Gly 2020 | aac Asn | atc Ile | atc Ile | atg Met | tat Tyr 2025 | gcg Ala | ccc Pro | acc Thr | ttg Leu | tgg Trp 2030 | gca Ala | agg Arg | 7897 |
| atg Met | atc Ile | ctg Leu 2035 | atg Met | act Thr | cat His | ttc Phe | ttc Phe 2040 | tcc Ser | atc Ile | ctt Leu | cta Leu | gct Ala 2045 | cag Gln | gaa Glu | caa Gln | 7945 |
| ctt Leu 2050 | gaa Glu | aaa Lys | gcc Ala | cta Leu | gat Asp | tgt Cys 2055 | cag Gln | atc Ile | tac Tyr | ggg Gly 2060 | gcc Ala | tgt Cys | tac Tyr | tcc Ser | att Ile | 7993 |
| gag Glu 2065 | cca Pro | ctt Leu | gac Asp | cta Leu | cct Pro 2070 | cag Gln | atc Ile | att Ile | caa Gln | cga Arg 2075 | ctc Leu | cac His | ggc Gly | ctt Leu | agc Ser 2080 | 8041 |
| gca Ala | ttt Phe | tca Ser | ctc Leu | cat His 2085 | agt Ser | tac Tyr | tct Ser | cca Pro | ggg Gly 2090 | gag Glu | atc Ile | aat Asn | agg Arg | gtg Val 2095 | gct Ala | 8089 |
| tca Ser | tgc Cys | ctc Leu 2100 | agg Arg | aaa Lys | ctt Leu | ggg Gly | gta Val | ccg Pro 2105 | ccc Pro | ttg Leu | cga Arg | gtc Val | tgg Trp 2110 | aga Arg | cat His | 8137 |
| cgg Arg | gcc Ala 2115 | aga Arg | agt Ser | gtc Val | cgc Arg | gct Ala | agg Arg 2120 | cta Leu | ctg Leu | tcc Ser | cag Gln | ggg Gly 2125 | ggg Gly | agg Arg | gct Ala | 8185 |
| gcc Ala 2130 | act Thr | tgt Cys | ggc Gly | aag Lys | tac Tyr | ctc Leu 2135 | ttc Phe | aac Asn | tgg Trp | gca Ala | gta Val 2140 | agg Arg | acc Thr | aag Lys | ctc Leu | 8233 |
| aaa Lys 2145 | ctc Leu | act Thr | cca Pro | atc Ile | ccg Pro 2150 | gct Ala | gcg Ala | tcc Ser | cag Gln | ttg Leu 2155 | gat Asp | tta Leu | tcc Ser | agc Ser | tgg Trp 2160 | 8281 |
| ttc Phe | gtt Val | gct Ala | ggt Gly | tac Tyr 2165 | agc Ser | ggg Gly | gga Gly | gac Asp | ata Ile 2170 | tat Tyr | cac His | agc Ser | ctg Leu | tct Ser | cgt Arg 2175 | 8329 |
| gcc Ala | cga Arg | ccc Pro | cgc Arg 2180 | tgg Trp | ttc Phe | atg Met | tgg Trp | tgc Cys 2185 | cta Leu | ctc Leu | cta Leu | ctt Leu | tct Ser 2190 | gta Val | ggg Gly | 8377 |
| gta Val | ggc Gly | atc Ile 2195 | tat Tyr | cta Leu | ctc Leu | ccc Pro | aac Asn 2200 | cga Arg | tga * | acggggagct | aaacactcca | | | | | 8427 |
| ggccaatagg | ccatcctggt | ttttcccttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | 8487 |
| tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | tttttttttt | 8547 |

| | | | | | | |
|-----------|------------|------------|------------|------------|------------|------|
| tggtccatc | ttagccctag | tcacggctag | ctgtgaaagg | tccgtgagcc | gcttgactgc | 8607 |
| agagagtgc | gatactggcc | tctctgcaga | tcaagt | | | 8643 |

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 <212> DNA
 <213> HCV

<220>
 <221> CDS
 <222> (1802)...(8407)

| | | | | | | |
|-----------------------|---|-------------|-------------|------------|------------|------|
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| ccccctccc | gggagagcca | tagtgggtctg | cggaaaccggt | gagtaaccg | gaattgccag | 180 |
| gacgaccggg | tcctttcttg | gatcaaccgc | ctcaatgcct | ggagatttg | gcgtgcccc | 240 |
| gcgagactgc | tagccgagta | gtgttgggtc | gcgaaaggcc | ttgtggtact | gcctgatagg | 300 |
| gtgcttgca | gtgccccggg | aggtctcgta | gaccgtgcac | catgagcacg | aatcctaaac | 360 |
| ctcaaagaaa | aaccaaagg | cgcgccatga | ttgaacaaga | tggattgcac | gcaggttctc | 420 |
| cggccgcttg | ggtggagagg | ctattcggct | atgactgggc | acaacagaca | atcggctgct | 480 |
| ctgatgccgc | cggtttccgg | ctgtcagcgc | aggggcgccc | ggttcttttt | gtcaagaccg | 540 |
| acctgtccgg | tgccctgaat | gaactgcagg | acgaggcagc | gcggctatcg | tggctggcca | 600 |
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| tgggtgtggc | ggaccgctat | caggacatag | cgttggctac | ccgtgatatt | gctgaagagc | 1080 |
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| cagaccacaa | cggtttccct | ctagcgggat | caattccgcc | ccccccccta | acgttactgg | 1260 |
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| tatgggatct | gatctggggc | ctcggtgcac | atgctttaca | tgtgtttagt | cgagggttaa | 1740 |
| aaacgtctag | gcccccgaa | ccacggggac | gtggttttcc | tttgaaaaac | acgataatac | 1800 |
| c atg gac cgg gag atg | gca gca tcg tgc gga ggc gcg gtt ttc gta ggt | | | | | 1849 |
| Met Asp Arg Glu Met | Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly | | | | | |
| 1 | 5 | 10 | 15 | | | |

| | | |
|---|---------------------|------|
| ctg ata ctc ttg acc ttg tca ccg cac tat aag | ctg ttc ctc gct agg | 1897 |
| Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys | Leu Phe Leu Ala Arg | |
| 20 | 25 | 30 |

| | | |
|---|---------------------|------|
| ctc ata tgg tgg tta caa tat ttt atc acc agg | gcc gag gca cac ttg | 1945 |
| Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg | Ala Glu Ala His Leu | |
| 35 | 40 | 45 |

| | | |
|---|------|----|
| caa gtg tgg atc ccc ccc ctc aac gtt cgg ggg ggc cgc gat gcc gtc | 1993 | |
| Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val | | |
| 50 | 55 | 60 |

| | | | |
|---|------|----|----|
| atc ctc ctc acg tgc gcg atc cac cca gag cta atc ttt acc atc acc | 2041 | | |
| Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr | | | |
| 65 | 70 | 75 | 80 |

| | | |
|---|---------------------|------|
| aaa atc ttg ctc gcc ata ctc ggt cca ctc atg | gtg ctc cag gct ggt | 2089 |
| 34 | | |

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|
| Lys | Ile | Leu | Leu | Ala 85 | Ile | Leu | Gly | Pro | Leu 90 | Met | Val | Leu | Gln | Ala 95 | Gly | |
| ata | acc | aaa | gtg | ccg | tac | ttc | gtg | cgc | gca | cac | ggg | ctc | att | cgt | gca | 2137 |
| Ile | Thr | Lys | Val 100 | Pro | Tyr | Phe | Val | Arg 105 | Ala | His | Gly | Leu | Ile 110 | Arg | Ala | |
| tgc | atg | ctg | gtg | cgg | aag | gtt | gct | ggg | ggg | cat | tat | gtc | caa | atg | gct | 2185 |
| Cys | Met | Leu 115 | Val | Arg | Lys | Val | Ala 120 | Gly | Gly | His | Tyr | Val 125 | Gln | Met | Ala | |
| ctc | atg | aag | ttg | gcc | gca | ctg | aca | ggg | acg | tac | gtt | tat | gac | cat | ctc | 2233 |
| Leu | Met 130 | Lys | Leu | Ala | Ala | Leu 135 | Thr | Gly | Thr | Tyr | Val 140 | Tyr | Asp | His | Leu | |
| acc | cca | ctg | cgg | gac | tgg | gcc | cac | gcg | ggc | cta | cga | gac | ctt | gcg | gtg | 2281 |
| Thr 145 | Pro | Leu | Arg | Asp | Trp 150 | Ala | His | Ala | Gly | Leu 155 | Arg | Asp | Leu | Ala | Val 160 | |
| gca | gtt | gag | ccc | gtc | gtc | ttc | tct | gat | atg | gag | acc | aag | gtt | atc | acc | 2329 |
| Ala | Val | Glu | Pro | Val 165 | Val | Phe | Ser | Asp | Met 170 | Glu | Thr | Lys | Val | Ile 175 | Thr | |
| tgg | ggg | gca | gac | acc | gcg | gcg | tgt | ggg | gac | atc | atc | ttg | ggc | ctg | ccc | 2377 |
| Trp | Gly | Ala | Asp 180 | Thr | Ala | Ala | Cys | Gly 185 | Asp | Ile | Ile | Leu | Gly 190 | Leu | Pro | |
| gtc | tcc | gcc | cgc | agg | ggg | agg | gag | ata | cat | ctg | gga | ccg | gca | gac | agc | 2425 |
| Val | Ser | Ala 195 | Arg | Arg | Gly | Arg | Glu 200 | Ile | His | Leu | Gly | Pro 205 | Ala | Asp | Ser | |
| ctt | gaa | ggg | cag | ggg | tgg | cga | ctc | ctc | gcg | cct | att | acg | gcc | tac | tcc | 2473 |
| Leu | Glu 210 | Gly | Gln | Gly | Trp | Arg 215 | Leu | Leu | Ala | Pro | Ile 220 | Thr | Ala | Tyr | Ser | |
| caa | cag | acg | cga | ggc | cta | ctt | ggc | tgc | atc | atc | act | agc | ctc | aca | ggc | 2521 |
| Gln 225 | Gln | Thr | Arg | Gly | Leu 230 | Leu | Gly | Cys | Ile | Ile 235 | Thr | Ser | Leu | Thr | Gly 240 | |
| cgg | gac | agg | aac | cag | gtc | gag | ggg | gag | gtc | caa | gtg | gtc | tcc | acc | gca | 2569 |
| Arg | Asp | Arg | Asn | Gln 245 | Val | Glu | Gly | Glu | Val 250 | Gln | Val | Val | Ser | Thr 255 | Ala | |
| aca | caa | tct | ttc | ctg | gcg | acc | tgc | gtc | aat | ggc | gtg | tgt | tgg | act | gtc | 2617 |
| Thr | Gln | Ser | Phe 260 | Leu | Ala | Thr | Cys | Val 265 | Asn | Gly | Val | Cys | Trp 270 | Thr | Val | |
| tat | cat | ggg | gcc | ggc | tca | aag | acc | ctt | gcc | ggc | cca | aag | ggc | cca | atc | 2665 |
| Tyr | His | Gly 275 | Ala | Gly | Ser | Lys | Thr 280 | Leu | Ala | Gly | Pro | Lys 285 | Gly | Pro | Ile | |
| acc | caa | atg | tac | acc | aat | gtg | gac | cag | gac | ctc | gtc | ggc | tgg | caa | gcg | 2713 |
| Thr | Gln 290 | Met | Tyr | Thr | Asn | Val 295 | Asp | Gln | Asp | Leu | Val 300 | Gly | Trp | Gln | Ala | |
| ccc | ccc | ggg | gcg | cgt | tcc | ttg | aca | cca | tgc | acc | tgc | ggc | agc | tcg | gac | 2761 |
| Pro 305 | Pro | Gly | Ala | Arg | Ser 310 | Leu | Thr | Pro | Cys | Thr 315 | Cys | Gly | Ser | Ser | Asp 320 | |
| ctt | tac | ttg | gtc | acg | agg | cat | gcc | gat | gtc | att | ccg | gtg | cgc | cgg | cgg | 2809 |
| Leu | Tyr | Leu | Val | Thr 325 | Arg | His | Ala | Asp | Val 330 | Ile | Pro | Val | Arg | Arg 335 | Arg | |
| ggc | gac | agc | agg | ggg | agc | cta | ctc | tcc | ccc | agg 35 | ccc | gtc | tcc | tac | ttg | 2857 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|--|
| Gly | Asp | Ser | Arg 340 | Gly | Ser | Leu | Leu | Ser 345 | Pro | Arg | Pro | Val | Ser 350 | Tyr | Leu | | |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggg Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 | |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cgg Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 | |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gga Gly | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 | |
| ttc Phe | acg Thr | gac Asp | aac Asn 405 | tcg Ser | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | gtg Val | 3049 | |
| gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggg Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | ccg Pro | 3097 | |
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 | |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggg Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggg Gly | 3193 | |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggg Gly | gcc Ala 480 | 3241 | |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggg Gly | ggg Gly 495 | tgc Cys | 3289 | |
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 | |
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 | |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 | |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 | |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 | |
| aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgt Cys | gat Asp | 3577 | |
| gag | ctc | gcc | gcg | aag | ctg | tcc | ggc | ctc | gga | ctc 36 | aat | gct | gta | gca | tat | 3625 | |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Glu | Leu | Ala 595 | Ala | Lys | Leu | Ser | Gly 600 | Leu | Gly | Leu | Asn | Ala 605 | Val | Ala | Tyr | |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggt Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | agc Ser | gtc Val | 4057 |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc | acc | tgg | gtg | ctg | gta | ggc | gga | gtc | cta | gca 37 | gct | ctg | gcc | gcg | tat | 4393 |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|
| Ser | Thr | Trp | Val | Leu | Val | Gly | Gly | Val | Leu | Ala | Ala | Leu | Ala | Ala | Tyr | |
| 850 | | | | | | 855 | | | | | 860 | | | | | |
| tgc | ctg | aca | aca | ggc | agc | gtg | gtc | att | gtg | ggc | agg | atc | atc | ttg | tcc | 4441 |
| Cys | Leu | Thr | Thr | Gly | Ser | Val | Val | Ile | Val | Gly | Arg | Ile | Ile | Leu | Ser | 880 |
| 865 | | | | | 870 | | | | | 875 | | | | | | |
| gga | aag | ccg | gcc | atc | att | ccc | gac | agg | gaa | gtc | ctt | tac | cgg | gag | ttc | 4489 |
| Gly | Lys | Pro | Ala | Ile | Ile | Pro | Asp | Arg | Glu | Val | Leu | Tyr | Arg | Glu | Phe | 895 |
| | | | | 885 | | | | | 890 | | | | | 895 | | |
| gat | gag | atg | gaa | gag | tgc | gcc | tca | cac | ctc | cct | tac | atc | gaa | cag | gga | 4537 |
| Asp | Glu | Met | Glu | Glu | Cys | Ala | Ser | His | Leu | Pro | Tyr | Ile | Glu | Gln | Gly | 910 |
| | | | 900 | | | | | 905 | | | | | 910 | | | |
| atg | cag | ctc | gcc | gaa | caa | ttc | aaa | cag | aag | gca | atc | ggg | ttg | ctg | caa | 4585 |
| Met | Gln | Leu | Ala | Glu | Gln | Phe | Lys | Gln | Lys | Ala | Ile | Gly | Leu | Leu | Gln | |
| | | 915 | | | | | 920 | | | | | 925 | | | | |
| aca | gcc | acc | aag | caa | gcg | gag | gct | gct | gct | ccc | gtg | gtg | gaa | tcc | aag | 4633 |
| Thr | Ala | Thr | Lys | Gln | Ala | Glu | Ala | Ala | Ala | Pro | Val | Val | Glu | Ser | Lys | |
| | 930 | | | | | 935 | | | | | 940 | | | | | |
| tgg | cgg | acc | ctc | gaa | gcc | ttc | tgg | gcg | aag | cat | atg | tgg | aat | ttc | atc | 4681 |
| Trp | Arg | Thr | Leu | Glu | Ala | Phe | Trp | Ala | Lys | His | Met | Trp | Asn | Phe | Ile | 960 |
| 945 | | | | 950 | | | | | | 955 | | | | | | |
| agc | ggg | ata | caa | tat | tta | gca | ggc | ttg | tcc | act | ctg | cct | ggc | aac | ccc | 4729 |
| Ser | Gly | Ile | Gln | Tyr | Leu | Ala | Gly | Leu | Ser | Thr | Leu | Pro | Gly | Asn | Pro | |
| | | | | 965 | | | | | 970 | | | | | 975 | | |
| gcg | ata | gca | tca | ctg | atg | gca | ttc | aca | gcc | tct | atc | acc | agc | ccg | ctc | 4777 |
| Ala | Ile | Ala | Ser | Leu | Met | Ala | Phe | Thr | Ala | Ser | Ile | Thr | Ser | Pro | Leu | |
| | | | 980 | | | | | 985 | | | | | 990 | | | |
| acc | acc | caa | cat | acc | ctc | ctg | ttt | aac | atc | ctg | ggg | gga | tgg | gtg | gcc | 4825 |
| Thr | Thr | Gln | His | Thr | Leu | Leu | Phe | Asn | Ile | Leu | Gly | Gly | Trp | Val | Ala | |
| | | 995 | | | | | 1000 | | | | | 1005 | | | | |
| gcc | caa | ctt | gct | cct | ccc | agc | gct | gct | tct | gct | ttc | gta | ggc | gcc | ggc | 4873 |
| Ala | Gln | Leu | Ala | Pro | Pro | Ser | Ala | Ala | Ser | Ala | Phe | Val | Gly | Ala | Gly | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | |
| atc | gct | gga | gcg | gct | gtt | ggc | agc | ata | ggc | ctt | ggg | aag | gtg | ctt | gtg | 4921 |
| Ile | Ala | Gly | Ala | Ala | Val | Gly | Ser | Ile | Gly | Leu | Gly | Lys | Val | Leu | Val | 1040 |
| 1025 | | | | | 1030 | | | | | 1035 | | | | | | |
| gat | att | ttg | gca | ggt | tat | gga | gca | ggg | gtg | gca | ggc | gcg | ctc | gtg | gcc | 4969 |
| Asp | Ile | Leu | Ala | Gly | Tyr | Gly | Ala | Gly | Val | Ala | Gly | Ala | Leu | Val | Ala | |
| | | | | 1045 | | | | | 1050 | | | | | 1055 | | |
| ttt | aag | gtc | atg | agc | ggc | gag | atg | ccc | tcc | acc | gag | gac | ctg | gtt | aac | 5017 |
| Phe | Lys | Val | Met | Ser | Gly | Glu | Met | Pro | Ser | Thr | Glu | Asp | Leu | Val | Asn | |
| | | | 1060 | | | | | 1065 | | | | | 1070 | | | |
| cta | ctc | cct | gct | atc | ctc | tcc | cct | ggc | gcc | cta | gtc | gtc | ggg | gtc | gtg | 5065 |
| Leu | Leu | Pro | Ala | Ile | Leu | Ser | Pro | Gly | Ala | Leu | Val | Val | Gly | Val | Val | |
| | | 1075 | | | | | 1080 | | | | | 1085 | | | | |
| tgc | gca | gcg | ata | ctg | cgt | cgg | cac | gtg | ggc | cca | ggg | gag | ggg | gct | gtg | 5113 |
| Cys | Ala | Ala | Ile | Leu | Arg | Arg | His | Val | Gly | Pro | Gly | Glu | Gly | Ala | Val | |
| | 1090 | | | | | 1095 | | | | | 1100 | | | | | |
| cag | tgg | atg | aac | cgg | ctg | ata | gcg | ttc | gct | tcg | cgg | ggt | aac | cac | gtc | 5161 |
| | | | | | | | | | | 38 | | | | | | |

| | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|------|
| Gln | Trp | Met | Asn | Arg | Leu | Ile | Ala | Phe | Ala | Ser | Arg | Gly | Asn | His | Val | | |
| 1105 | | | | | 1110 | | | | | 1115 | | | | | 1120 | | |
| tcc | ccc | acg | cac | tat | gtg | cct | gag | agc | gac | gct | gca | gca | cgt | gtc | act | | 5209 |
| Ser | Pro | Thr | His | Tyr | Val | Pro | Glu | Ser | Asp | Ala | Ala | Ala | Arg | Val | Thr | | |
| | | | | 1125 | | | | | 1130 | | | | | 1135 | | | |
| cag | atc | ctc | tct | agt | ctt | acc | atc | act | cag | ctg | ctg | aag | agg | ctt | cac | | 5257 |
| Gln | Ile | Leu | Ser | Ser | Leu | Thr | Ile | Thr | Gln | Leu | Leu | Lys | Arg | Leu | His | | |
| | | | 1140 | | | | | 1145 | | | | | 1150 | | | | |
| cag | tgg | atc | aac | gag | gac | tgc | tcc | acg | cca | tgc | tcc | ggc | tcg | tgg | cta | | 5305 |
| Gln | Trp | Ile | Asn | Glu | Asp | Cys | Ser | Thr | Pro | Cys | Ser | Gly | Ser | Trp | Leu | | |
| | | 1155 | | | | | 1160 | | | | | 1165 | | | | | |
| aga | gat | gtt | tgg | gat | tgg | gta | tgc | acg | gtg | ttg | act | gat | ttc | aag | acc | | 5353 |
| Arg | Asp | Val | Trp | Asp | Trp | Val | Cys | Thr | Val | Leu | Thr | Asp | Phe | Lys | Thr | | |
| | 1170 | | | | | 1175 | | | | | 1180 | | | | | | |
| tgg | ctc | cag | tcc | aag | ctc | ctg | ccg | cga | ttg | ccg | gga | gtc | ccc | ttc | ttc | | 5401 |
| Trp | Leu | Gln | Ser | Lys | Leu | Leu | Pro | Arg | Leu | Pro | Gly | Val | Pro | Phe | Phe | | |
| 1185 | | | | | 1190 | | | | | 1195 | | | | | 1200 | | |
| tca | tgt | caa | cgt | ggg | tac | aag | gga | gtc | tgg | cgg | ggc | gac | ggc | atc | atg | | 5449 |
| Ser | Cys | Gln | Arg | Gly | Tyr | Lys | Gly | Val | Trp | Arg | Gly | Asp | Gly | Ile | Met | | |
| | | | | 1205 | | | | | 1210 | | | | | 1215 | | | |
| caa | acc | acc | tgc | cca | tgt | gga | gca | cag | atc | acc | gga | cat | gtg | aaa | aac | | 5497 |
| Gln | Thr | Thr | Cys | Pro | Cys | Gly | Ala | Gln | Ile | Thr | Gly | His | Val | Lys | Asn | | |
| | | | 1220 | | | | | 1225 | | | | | 1230 | | | | |
| tgt | tcc | atg | agg | atc | gtg | ggg | cct | agg | acc | tgt | agt | aac | acg | tgg | cat | | 5545 |
| Cys | Ser | Met | Arg | Ile | Val | Gly | Pro | Arg | Thr | Cys | Ser | Asn | Thr | Trp | His | | |
| | | 1235 | | | | | 1240 | | | | | 1245 | | | | | |
| gga | aca | ttc | ccc | att | aac | gcg | tac | acc | acg | ggc | ccc | tgc | acg | ccc | tcc | | 5593 |
| Gly | Thr | Phe | Pro | Ile | Asn | Ala | Tyr | Thr | Thr | Gly | Pro | Cys | Thr | Pro | Ser | | |
| | 1250 | | | | | 1255 | | | | | 1260 | | | | | | |
| ccg | gcg | cca | aat | tat | tct | agg | gcg | ctg | tgg | cgg | gtg | gct | gct | gag | gag | | 5641 |
| Pro | Ala | Pro | Asn | Tyr | Ser | Arg | Ala | Leu | Trp | Arg | Val | Ala | Ala | Glu | Glu | | |
| 1265 | | | | | 1270 | | | | | 1275 | | | | 1280 | | | |
| tac | gtg | gag | gtt | acg | cgg | gtg | ggg | gat | ttc | cac | tac | gtg | acg | ggc | atg | | 5689 |
| Tyr | Val | Glu | Val | Thr | Arg | Val | Gly | Asp | Phe | His | Tyr | Val | Thr | Gly | Met | | |
| | | | | 1285 | | | | | 1290 | | | | | 1295 | | | |
| acc | act | gac | aac | gta | aag | tgc | ccg | tgt | cag | gtt | ccg | gcc | ccc | gaa | ttc | | 5737 |
| Thr | Thr | Asp | Asn | Val | Lys | Cys | Pro | Cys | Gln | Val | Pro | Ala | Pro | Glu | Phe | | |
| | | | 1300 | | | | | 1305 | | | | | 1310 | | | | |
| ttc | aca | gaa | gtg | gat | ggg | gtg | cgg | ttg | cac | agg | tac | gct | cca | gcg | tgc | | 5785 |
| Phe | Thr | Glu | Val | Asp | Gly | Val | Arg | Leu | His | Arg | Tyr | Ala | Pro | Ala | Cys | | |
| | | 1315 | | | | | 1320 | | | | | 1325 | | | | | |
| aaa | ccc | ctc | cta | cgg | gag | gag | gtc | aca | ttc | ctg | gtc | ggg | ctc | aat | caa | | 5833 |
| Lys | Pro | Leu | Leu | Arg | Glu | Glu | Val | Thr | Phe | Leu | Val | Gly | Leu | Asn | Gln | | |
| | 1330 | | | | 1335 | | | | | | 1340 | | | | | | |
| tac | ctg | gtt | ggg | tca | cag | ctc | cca | tgc | gag | ccc | gaa | ccg | gac | gta | gca | | 5881 |
| Tyr | Leu | Val | Gly | Ser | Gln | Leu | Pro | Cys | Glu | Pro | Glu | Pro | Asp | Val | Ala | | |
| 1345 | | | | | 1350 | | | | | 1355 | | | | 1360 | | | |
| gtg | ctc | act | tcc | atg | ctc | acc | gac | ccc | tcc | cac | att | acg | gcg | gag | acg | | 5929 |
| | | | | | | | | | | 39 | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|--|
| Val | Leu | Thr | Ser | Met 1365 | Leu | Thr | Asp | Pro | Ser 1370 | His | Ile | Thr | Ala | Glu 1375 | Thr | | |
| gct Ala | aag Lys | cgt Arg | agg Arg 1380 | ctg Leu | gcc Ala | agg Arg | gga Gly 1385 | tct Ser | ccc Pro | ccc Pro | tcc Ser | ttg Leu | gcc Ala 1390 | agc Ser | tca Ser | 5977 | |
| tca Ser | gct Ala | agc Ser 1395 | cag Gln | ctg Leu | tct Ser | gcg Ala | ccc Pro 1400 | tcc Ser | ttg Leu | aag Lys | gca Ala | aca Thr 1405 | tgc Cys | act Thr | acc Thr | 6025 | |
| cgt Arg | cat His 1410 | gac Asp | tcc Ser | ccg Pro | gac Asp | gct Ala 1415 | gac Asp | ctc Leu | atc Ile | gag Glu | gcc Ala 1420 | aac Asn | ctc Leu | ctg Leu | tgg Trp | 6073 | |
| cgg Arg 1425 | cag Gln | gag Glu | atg Met | ggc Gly 1430 | ggg Gly | aac Asn | atc Ile | acc Thr | cgc Arg | gtg Val 1435 | gag Glu | tca Ser | gaa Glu | aat Asn | aag Lys 1440 | 6121 | |
| gta Val | gta Val | att Ile | ttg Leu | gac Asp 1445 | tct Ser | ttc Phe | gag Glu | ccg Pro | ctc Leu 1450 | caa Gln | gcg Ala | gag Glu | gag Glu | gat Asp 1455 | gag Glu | 6169 | |
| agg Arg | gaa Glu | gta Val | tcc Ser 1460 | gtt Val | ccg Pro | gcg Ala | gag Glu | atc Ile 1465 | ctg Leu | cgg Arg | agg Arg | tcc Ser | agg Arg 1470 | aaa Lys | ttc Phe | 6217 | |
| cct Pro | cga Arg | gcg Ala 1475 | atg Met | ccc Pro | ata Ile | tggt Trp | gca Ala 1480 | cgc Arg | ccg Pro | gat Asp | tac Tyr | aac Asn 1485 | cct Pro | cca Pro | ctg Leu | 6265 | |
| tta Leu | gag Glu 1490 | tcc Ser | tggt Trp | aag Lys | gac Asp | ccg Pro 1495 | gac Asp | tac Tyr | gtc Val | cct Pro | cca Pro 1500 | gtg Val | gta Val | cac His | ggg Gly | 6313 | |
| tgt Cys 1505 | cca Pro | ttg Leu | ccg Pro | cct Pro | gcc Ala 1510 | aag Lys | gcc Ala | cct Pro | ccg Pro | ata Ile 1515 | cca Pro | cct Pro | cca Pro | cgg Arg | agg Arg 1520 | 6361 | |
| aag Lys | agg Arg | acg Thr | gtt Val | gtc Val 1525 | ctg Leu | tca Ser | gaa Glu | tct Ser | acc Thr 1530 | gtg Val | tct Ser | tct Ser | gcc Ala | ttg Leu 1535 | gcg Ala | 6409 | |
| gag Glu | ctc Leu | gcc Ala | aca Thr 1540 | aag Lys | acc Thr | ttc Phe | ggc Gly | agc Ser 1545 | tcc Ser | gaa Glu | tcg Ser | tcg Ser | gcc Ala 1550 | gtc Val | gac Asp | 6457 | |
| agc Ser | ggc Gly | acg Thr 1555 | gca Ala | acg Thr | gcc Ala | tct Ser | cct Pro 1560 | gac Asp | cag Gln | ccc Pro | tcc Ser | gac Asp 1565 | gac Asp | ggc Gly | gac Asp | 6505 | |
| gcg Ala 1570 | gga Gly | tcc Ser | gac Asp | gtt Val | gag Glu | tcg Ser 1575 | tac Tyr | tcc Ser | tcc Ser | atg Met | ccc Pro 1580 | ccc Pro | ctt Leu | gag Glu | ggg Gly | 6553 | |
| gag Glu 1585 | ccg Pro | ggg Gly | gat Asp | ccc Pro | gat Asp 1590 | ctc Leu | agc Ser | gac Asp | ggg Gly | tct Ser 1595 | tggt Trp | tct Ser | acc Thr | gta Val | agc Ser 1600 | 6601 | |
| gag Glu | gag Glu | gct Ala | agt Ser | gag Glu 1605 | gac Asp | gtc Val | gtc Val | tgc Cys | tgc Cys 1610 | tcg Ser | atg Met | tcc Ser | tac Tyr | aca Thr 1615 | tgg Trp | 6649 | |
| aca | ggc | gcc | ctg | atc | acg | cca | tgc | gct | gcg | gag 40 | gaa | acc | aag | ctg | ccc | 6697 | |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Thr | Gly | Ala | Leu | Ile | Thr | Pro | Cys | Ala | Ala | Glu | Glu | Thr | Lys | Leu | Pro | |
| | | | 1620 | | | | | 1625 | | | | | 1630 | | | |
| atc | aat | gca | ctg | agc | aac | tct | ttg | ctc | cgt | cac | cac | aac | ttg | gtc | tat | 6745 |
| Ile | Asn | Ala | Leu | Ser | Asn | Ser | Leu | Leu | Arg | His | His | Asn | Leu | Val | Tyr | |
| | | 1635 | | | | | 1640 | | | | | 1645 | | | | |
| gct | aca | aca | tct | cgc | agc | gca | agc | ctg | cgg | cag | aag | aag | gtc | acc | ttt | 6793 |
| Ala | Thr | Thr | Ser | Arg | Ser | Ala | Ser | Leu | Arg | Gln | Lys | Lys | Val | Thr | Phe | |
| | 1650 | | | | | 1655 | | | | | 1660 | | | | | |
| gac | aga | ctg | cag | gtc | ctg | gac | gac | cac | tac | cgg | gac | gtg | ctc | aag | gag | 6841 |
| Asp | Arg | Leu | Gln | Val | Leu | Asp | Asp | His | Tyr | Arg | Asp | Val | Leu | Lys | Glu | |
| 1665 | | | | | 1670 | | | | | 1675 | | | | | 1680 | |
| atg | aag | gcg | aag | gcg | tcc | aca | gtt | aag | gct | aaa | ctt | cta | tcc | gtg | gag | 6889 |
| Met | Lys | Ala | Lys | Ala | Ser | Thr | Val | Lys | Ala | Lys | Leu | Leu | Ser | Val | Glu | |
| | | | | 1685 | | | | | 1690 | | | | | 1695 | | |
| gaa | gcc | tgt | aag | ctg | acg | ccc | cca | cat | tcg | gcc | aga | tct | aaa | ttt | ggc | 6937 |
| Glu | Ala | Cys | Lys | Leu | Thr | Pro | Pro | His | Ser | Ala | Arg | Ser | Lys | Phe | Gly | |
| | | | 1700 | | | | | 1705 | | | | | 1710 | | | |
| tat | ggg | gca | aag | gac | gtc | cgg | aac | cta | tcc | agc | aag | gcc | gtt | aac | cac | 6985 |
| Tyr | Gly | Ala | Lys | Asp | Val | Arg | Asn | Leu | Ser | Ser | Lys | Ala | Val | Asn | His | |
| | | 1715 | | | | | 1720 | | | | | 1725 | | | | |
| atc | cgc | tcc | gtg | tgg | aag | gac | ttg | ctg | gaa | gac | act | gag | aca | cca | att | 7033 |
| Ile | Arg | Ser | Val | Trp | Lys | Asp | Leu | Leu | Glu | Asp | Thr | Glu | Thr | Pro | Ile | |
| | 1730 | | | | | 1735 | | | | | 1740 | | | | | |
| gac | acc | acc | atc | atg | gca | aaa | aat | gag | gtt | ttc | tgc | gtc | caa | cca | gag | 7081 |
| Asp | Thr | Thr | Ile | Met | Ala | Lys | Asn | Glu | Val | Phe | Cys | Val | Gln | Pro | Glu | |
| 1745 | | | | | 1750 | | | | | 1755 | | | | | 1760 | |
| aag | ggg | ggc | cgc | aag | cca | gct | cgc | ctt | atc | gta | ttc | cca | gat | ttg | ggg | 7129 |
| Lys | Gly | Gly | Arg | Lys | Pro | Ala | Arg | Leu | Ile | Val | Phe | Pro | Asp | Leu | Gly | |
| | | | | 1765 | | | | | 1770 | | | | | 1775 | | |
| gtt | cgt | gtg | tgc | gag | aaa | atg | gcc | ctt | tac | gat | gtg | gtc | tcc | acc | ctc | 7177 |
| Val | Arg | Val | Cys | Glu | Lys | Met | Ala | Leu | Tyr | Asp | Val | Val | Ser | Thr | Leu | |
| | | | 1780 | | | | | 1785 | | | | | 1790 | | | |
| cct | cag | gcc | gtg | atg | ggc | tct | tca | tac | gga | ttc | caa | tac | tct | cct | gga | 7225 |
| Pro | Gln | Ala | Val | Met | Gly | Ser | Ser | Tyr | Gly | Phe | Gln | Tyr | Ser | Pro | Gly | |
| | | 1795 | | | | | 1800 | | | | | 1805 | | | | |
| cag | cgg | gtc | gag | ttc | ctg | gtg | aat | gct | tgg | aaa | gcg | aag | aaa | tgc | cct | 7273 |
| Gln | Arg | Val | Glu | Phe | Leu | Val | Asn | Ala | Trp | Lys | Ala | Lys | Lys | Cys | Pro | |
| | 1810 | | | | | 1815 | | | | | 1820 | | | | | |
| atg | ggc | ttc | gca | tat | gac | acc | cgc | tgt | ttt | gac | tca | acg | gtc | act | gag | 7321 |
| Met | Gly | Phe | Ala | Tyr | Asp | Thr | Arg | Cys | Phe | Asp | Ser | Thr | Val | Thr | Glu | |
| 1825 | | | | | 1830 | | | | | 1835 | | | | | 1840 | |
| aat | gac | atc | cgt | gtt | gag | gag | tca | atc | tac | caa | tgt | tgt | gac | ttg | gcc | 7369 |
| Asn | Asp | Ile | Arg | Val | Glu | Glu | Ser | Ile | Tyr | Gln | Cys | Cys | Asp | Leu | Ala | |
| | | | | 1845 | | | | | 1850 | | | | | 1855 | | |
| ccc | gaa | gcc | aga | cag | gcc | ata | agg | tcg | ctc | aca | gag | cgg | ctt | tac | atc | 7417 |
| Pro | Glu | Ala | Arg | Gln | Ala | Ile | Arg | Ser | Leu | Thr | Glu | Arg | Leu | Tyr | Ile | |
| | | | 1860 | | | | | 1865 | | | | | 1870 | | | |
| ggg | ggc | ccc | ctg | act | aat | tct | aaa | ggg | cag | aac | tgc | ggc | tat | cgc | cgg | 7465 |
| | | | | | | | | | | 41 | | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Gly | Gly | Pro | Leu | Thr | Asn | Ser | Lys | Gly | Gln | Asn | Cys | Gly | Tyr | Arg | Arg | |
| | | 1875 | | | | | 1880 | | | | | 1885 | | | | |
| tgc | cgc | gcg | agc | ggt | gta | ctg | acg | acc | agc | tgc | ggt | aat | acc | ctc | aca | 7513 |
| Cys | Arg | Ala | Ser | Gly | Val | Leu | Thr | Thr | Ser | Cys | Gly | Asn | Thr | Leu | Thr | |
| | 1890 | | | | | 1895 | | | | | 1900 | | | | | |
| tgt | tac | ttg | aag | gcc | gct | gcg | gcc | tgt | cga | gct | gcg | aag | ctc | cag | gac | 7561 |
| Cys | Tyr | Leu | Lys | Ala | Ala | Ala | Ala | Cys | Arg | Ala | Ala | Lys | Leu | Gln | Asp | |
| | 1905 | | | | 1910 | | | | | 1915 | | | | | 1920 | |
| tgc | acg | atg | ctc | gta | tgc | gga | gac | gac | ctt | gtc | gtt | atc | tgt | gaa | agc | 7609 |
| Cys | Thr | Met | Leu | Val | Cys | Gly | Asp | Asp | Leu | Val | Val | Ile | Cys | Glu | Ser | |
| | | | | 1925 | | | | | 1930 | | | | | 1935 | | |
| gcg | ggg | acc | caa | gag | gac | gag | gcg | agc | cta | cgg | gcc | ttc | acg | gag | gct | 7657 |
| Ala | Gly | Thr | Gln | Glu | Asp | Glu | Ala | Ser | Leu | Arg | Ala | Phe | Thr | Glu | Ala | |
| | | | 1940 | | | | | 1945 | | | | | 1950 | | | |
| atg | act | aga | tac | tct | gcc | ccc | cct | ggg | gac | ccg | ccc | aaa | cca | gaa | tac | 7705 |
| Met | Thr | Arg | Tyr | Ser | Ala | Pro | Pro | Gly | Asp | Pro | Pro | Lys | Pro | Glu | Tyr | |
| | | 1955 | | | | | 1960 | | | | | 1965 | | | | |
| gac | ttg | gag | ttg | ata | aca | tca | tgc | tcc | tcc | aat | gtg | tca | gtc | gcg | cac | 7753 |
| Asp | Leu | Glu | Leu | Ile | Thr | Ser | Cys | Ser | Ser | Asn | Val | Ser | Val | Ala | His | |
| | 1970 | | | | | 1975 | | | | | 1980 | | | | | |
| gat | gca | tct | ggc | aaa | agg | gtg | tac | tat | ctc | acc | cgt | gac | ccc | acc | acc | 7801 |
| Asp | Ala | Ser | Gly | Lys | Arg | Val | Tyr | Tyr | Leu | Thr | Arg | Asp | Pro | Thr | Thr | |
| | 1985 | | | | 1990 | | | | | 1995 | | | | | 2000 | |
| ccc | ctt | gcg | cgg | gct | gcg | tgg | gag | aca | gct | aga | cac | act | cca | gtc | aat | 7849 |
| Pro | Leu | Ala | Arg | Ala | Ala | Trp | Glu | Thr | Ala | Arg | His | Thr | Pro | Val | Asn | |
| | | | | 2005 | | | | | 2010 | | | | | 2015 | | |
| tcc | tgg | cta | ggc | aac | atc | atc | atg | tat | gcg | ccc | acc | ttg | tgg | gca | agg | 7897 |
| Ser | Trp | Leu | Gly | Asn | Ile | Ile | Met | Tyr | Ala | Pro | Thr | Leu | Trp | Ala | Arg | |
| | | | 2020 | | | | | 2025 | | | | | 2030 | | | |
| atg | atc | ctg | atg | act | cat | ttc | ttc | tcc | atc | ctt | cta | gct | cag | gaa | caa | 7945 |
| Met | Ile | Leu | Met | Thr | His | Phe | Phe | Ser | Ile | Leu | Leu | Ala | Gln | Glu | Gln | |
| | | 2035 | | | | 2040 | | | | | 2045 | | | | | |
| ctt | gaa | aaa | gcc | cta | gat | tgt | cag | atc | tac | ggg | gcc | tgt | tac | tcc | att | 7993 |
| Leu | Glu | Lys | Ala | Leu | Asp | Cys | Gln | Ile | Tyr | Gly | Ala | Cys | Tyr | Ser | Ile | |
| | 2050 | | | | | 2055 | | | | | 2060 | | | | | |
| gag | cca | ctt | gac | cta | cct | cag | atc | att | caa | cga | ctc | cac | ggc | ctt | agc | 8041 |
| Glu | Pro | Leu | Asp | Leu | Pro | Gln | Ile | Ile | Gln | Arg | Leu | His | Gly | Leu | Ser | |
| | 2065 | | | | 2070 | | | | 2075 | | | | | | 2080 | |
| gca | ttt | tca | ctc | cat | agt | tac | tct | cca | ggt | gag | atc | aat | agg | gtg | gct | 8089 |
| Ala | Phe | Ser | Leu | His | Ser | Tyr | Ser | Pro | Gly | Glu | Ile | Asn | Arg | Val | Ala | |
| | | | | 2085 | | | | | 2090 | | | | | 2095 | | |
| tca | tgc | ctc | agg | aaa | ctt | ggg | gta | ccg | ccc | ttg | cga | gtc | tgg | aga | cat | 8137 |
| Ser | Cys | Leu | Arg | Lys | Leu | Gly | Val | Pro | Pro | Leu | Arg | Val | Trp | Arg | His | |
| | | | 2100 | | | | | 2105 | | | | | 2110 | | | |
| cgg | gcc | aga | agt | gtc | cgc | gct | agg | cta | ctg | tcc | cag | ggg | ggg | agg | gct | 8185 |
| Arg | Ala | Arg | Ser | Val | Arg | Ala | Arg | Leu | Leu | Ser | Gln | Gly | Gly | Arg | Ala | |
| | | 2115 | | | | | 2120 | | | | | 2125 | | | | |
| gcc | act | tgt | ggc | aag | tac | ctc | ttc | aac | tgg | gca | gta | agg | acc | aag | ctc | 8233 |
| | | | | | | | | | 42 | | | | | | | |

| | |
|---|------|
| Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu | |
| 2130 2135 2140 | |
| aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg | 8281 |
| Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp | |
| 2145 2150 2155 2160 | |
| ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt | 8329 |
| Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg | |
| 2165 2170 2175 | |
| gcc cga ccc cgc tgg ttc acg tgg tgc cta ctc cta ctt tct gta ggg | 8377 |
| Ala Arg Pro Arg Trp Phe Thr Trp Cys Leu Leu Leu Leu Ser Val Gly | |
| 2180 2185 2190 | |
| gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca | 8427 |
| Val Gly Ile Tyr Leu Leu Pro Asn Arg * | |
| 2195 2200 | |

| | |
|--|------|
| ggccaatagg ccattcctggt tttttccctt tttttccctt tttttttttt tttttttttt | 8487 |
| tttttttttt tttttttttt ttccccccct tttttccctt ttttttttcc tttttctttcc | 8547 |
| tttgggtggct ccattcttagc cctagtcacg gctagctgtg aaagggtccgt gagccgcttg | 8607 |
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| gacgaccggg tcccttcttg gatcaaccgg ctcaatgcct ggagatttgg gcgtgcccc | 240 |
| gcgagactgc tagccagta gtgttggtgc gcgaaaggcc ttgtggtact gcctgatagg | 300 |
| gtgcttgcga gtgccccggg aggtctcgta gaccgtgcac catgagcacg aatcctaacc | 360 |
| ctcaaagaaa aaccaaaggg cgcgccatga ttgaacaaga tggattgcac gcaggttctc | 420 |
| cggccgcttg ggtggagagg ctattcggct atgactgggc acaacagaca atcggctgct | 480 |
| ctgatgccgc cgtgttccgg ctgtcagcgc aggggcgccc ggttcttttt gtcaagaccg | 540 |
| acctgtccgg tgccctgaat gaactgcagg acgaggcagc gcggctatcg tggctggcca | 600 |
| cgacgggcgt tccttgcgca gctgtgctcg acgttgtcac tgaagcggga agggactggc | 660 |
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| atggctctcc tcaagcgtat tcaacaaggg atgtaaggat gccagaagg taccctattg | 1680 |
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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| c | atg | gac | cgg | gag | atg | gca | gca | tcg | tgc | gga | ggc | gcg | ggt | ttc | gta | ggt | 1849 |
| Met | Asp | Arg | Glu | Met | Ala | Ala | Ser | Cys | Gly | Gly | Ala | Val | Phe | Val | Gly | | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | | | |
| ctg | ata | ctc | ttg | acc | ttg | tca | ccg | cac | tat | aag | ctg | ttc | ctc | gct | agg | 1897 | |
| Leu | Ile | Leu | Leu | Thr | Leu | Ser | Pro | His | Tyr | Lys | Leu | Phe | Leu | Ala | Arg | | |
| | | | 20 | | | | | 25 | | | | | 30 | | | | |
| ctc | ata | tgg | tgg | tta | caa | tat | ttt | atc | acc | agg | gcc | gag | gca | cac | ttg | 1945 | |
| Leu | Ile | Trp | Trp | Leu | Gln | Tyr | Phe | Ile | Thr | Arg | Ala | Glu | Ala | His | Leu | | |
| | | 35 | | | | | 40 | | | | | 45 | | | | | |
| caa | gtg | tgg | atc | ccc | ccc | ctc | aac | gtt | cgg | ggg | ggc | cgc | gat | gcc | gtc | 1993 | |
| Gln | Val | Trp | Ile | Pro | Pro | Leu | Asn | Val | Arg | Gly | Gly | Arg | Asp | Ala | Val | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| atc | ctc | ctc | acg | tgc | gcg | atc | cac | cca | gag | cta | atc | ttt | acc | atc | acc | 2041 | |
| Ile | Leu | Leu | Thr | Cys | Ala | Ile | His | Pro | Glu | Leu | Ile | Phe | Thr | Ile | Thr | | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | | |
| aaa | atc | ttg | ctc | gcc | ata | ctc | ggt | cca | ctc | atg | gtg | ctc | cag | gct | ggt | 2089 | |
| Lys | Ile | Leu | Leu | Ala | Ile | Leu | Gly | Pro | Leu | Met | Val | Leu | Gln | Ala | Gly | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| ata | acc | aaa | gtg | ccg | tac | ttc | gtg | cgc | gca | cac | ggg | ctc | att | cgt | gca | 2137 | |
| Ile | Thr | Lys | Val | Pro | Tyr | Phe | Val | Arg | Ala | His | Gly | Leu | Ile | Arg | Ala | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| tgc | atg | ctg | gtg | cgg | aag | gtt | gct | ggg | ggt | cat | tat | gtc | caa | atg | gct | 2185 | |
| Cys | Met | Leu | Val | Arg | Lys | Val | Ala | Gly | Gly | His | Tyr | Val | Gln | Met | Ala | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| ctc | atg | aag | ttg | gcc | gca | ctg | aca | ggt | acg | tac | gtt | tat | gac | cat | ctc | 2233 | |
| Leu | Met | Lys | Leu | Ala | Ala | Leu | Thr | Gly | Thr | Tyr | Val | Tyr | Asp | His | Leu | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| acc | cca | ctg | cgg | gac | tgg | gcc | cac | gcg | ggc | cta | cga | gac | ctt | gcg | gtg | 2281 | |
| Thr | Pro | Leu | Arg | Asp | Trp | Ala | His | Ala | Gly | Leu | Arg | Asp | Leu | Ala | Val | | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | | |
| gca | gtt | gag | ccc | gtc | gtc | ttc | tct | gat | atg | gag | acc | aag | gtt | atc | acc | 2329 | |
| Ala | Val | Glu | Pro | Val | Val | Phe | Ser | Asp | Met | Glu | Thr | Lys | Val | Ile | Thr | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| tgg | ggg | gca | gac | acc | gcg | gcg | tgt | ggg | gac | atc | atc | ttg | ggc | ctg | ccc | 2377 | |
| Trp | Gly | Ala | Asp | Thr | Ala | Ala | Cys | Gly | Asp | Ile | Ile | Leu | Gly | Leu | Pro | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| gtc | tcc | gcc | cgc | agg | ggg | agg | gag | ata | cat | ctg | gga | ccg | gca | gac | agc | 2425 | |
| Val | Ser | Ala | Arg | Arg | Gly | Arg | Glu | Ile | His | Leu | Gly | Pro | Ala | Asp | Ser | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| ctt | gaa | ggg | cag | ggg | tgg | cga | ctc | ctc | gcg | cct | att | acg | gcc | tac | tcc | 2473 | |
| Leu | Glu | Gly | Gln | Gly | Trp | Arg | Leu | Leu | Ala | Pro | Ile | Thr | Ala | Tyr | Ser | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| caa | cag | acg | cga | ggc | cta | ctt | ggc | tgc | atc | atc | act | agc | ctc | aca | ggc | 2521 | |
| Gln | Gln | Thr | Arg | Gly | Leu | Leu | Gly | Cys | Ile | Ile | Thr | Ser | Leu | Thr | Gly | | |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 | | |
| cgg | gac | agg | aac | cag | gtc | gag | ggg | gag | gtc | caa | gtg | gtc | tcc | acc | gca | 2569 | |
| Arg | Asp | Arg | Asn | Gln | Val | Glu | Gly | Glu | Val | Gln | Val | Val | Ser | Thr | Ala | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| aca Thr | caa Gln | tct Ser | ttc Phe 260 | ctg Leu | gcg Ala | acc Thr | tgc Cys | gtc Val 265 | aat Asn | ggc Gly | gtg Val | tgt Cys | tgg Trp 270 | act Thr | gtc Val | 2617 |
| tat Tyr | cat His | ggg Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | atc Ile | 2665 |
| acc Thr | caa Gln 290 | atg Met | tac Tyr | acc Thr | aat Asn | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | gcg Ala | 2713 |
| ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | gac Asp 320 | 2761 |
| ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | agg Arg | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | cgg Arg | 2809 |
| ggc Gly | gac Asp | ggc Gly | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | agg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | ttg Leu | 2857 |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggt Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gga Gly | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 |
| ttc Phe | acg Thr | gac Asp | aac Asn | tcg Ser 405 | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | gtg Val | 3049 |
| gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggt Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | ccg Pro | 3097 |
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggt Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggt Gly | 3193 |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggt Gly | gcc Ala 480 | 3241 |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggt Gly 495 | ggt Gly | tgc Cys | 3289 |
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 |
| aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgt Cys | gat Asp | 3577 |
| gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | tat Tyr | 3625 |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu 665 | acg Thr | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggc Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | agc Ser | gtc Val | 4057 |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |

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|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|------|
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gcc Ala | gcg Ala | tat Tyr | 4393 |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 |
| gga Gly | aag Lys | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ttt Phe | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgc Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 |
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 |
| aca Thr | gcc Ala 930 | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 |
| tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | atc Ile 960 | 4681 |
| agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | ccc Pro | 4729 |
| gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe | aca Thr 985 | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | ctc Leu | 4777 |
| acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly | gga Gly 1005 | tgg Trp | gtg Val | gcc Ala | 4825 |
| gcc Ala | caa Gln 1010 | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser 1015 | gct Ala | gct Ala | tct Ser | gct Ala | ttc Phe 1020 | gta Val | ggc Gly | gcc Ala | ggc Gly | 4873 |

| | |
|---|------|
| atc gct gga gcg gct gtt ggc agc ata ggc ctt ggg aag gtg ctt gtg Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val 1025 1030 1035 1040 | 4921 |
| gat att ttg gca ggt tat gga gca ggg gtg gca ggc gcg ctc gtg gcc Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala 1045 1050 1055 | 4969 |
| ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt aac Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn 1060 1065 1070 | 5017 |
| cta ctc cct gct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Gly Val Val 1075 1080 1085 | 5065 |
| tgc gca gcg ata ctg cgt cgg cac gtg ggc cca ggg gag ggg gct gtg Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val 1090 1095 1100 | 5113 |
| cag tgg atg aac cgg ctg ata gcg ttc gct tcg cgg ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105 1110 1115 1120 | 5161 |
| tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Arg Val Thr 1125 1130 1135 | 5209 |
| cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt cac Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His 1140 1145 1150 | 5257 |
| cag tgg atc aac gag gac tgc tcc acg cca tgc tcc ggc tcg tgg cta Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu 1155 1160 1165 | 5305 |
| aga gat gtt tgg gat tgg ata tgc acg gtg ttg act gat ttc aag acc Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Thr 1170 1175 1180 | 5353 |
| tgg ctc cag tcc aag ctc ctg ccg cga ttg ccg gga gtc ccc ttc ttc Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe 1185 1190 1195 1200 | 5401 |
| tca tgt caa cgt ggg tac aag gga gtc tgg cgg ggc gac ggc atc atg Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met 1205 1210 1215 | 5449 |
| caa acc acc tgc cca tgt gga gca cag atc acc gga cat gtg aaa aac Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn 1220 1225 1230 | 5497 |
| cgt tcc atg agg atc gtg ggg cct agg acc tgt agt aac acg tgg cat Arg Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His 1235 1240 1245 | 5545 |
| gga aca ttc ccc att aac gcg tac acc acg ggc ccc tgc acg ccc tcc Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Ser 1250 1255 1260 | 5593 |
| ccg gcg cca aat tat tct agg gcg ctg tgg cgg gtg gct gct gag gag Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu 1265 1270 1275 1280 | 5641 |

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|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| tac Tyr | gtg Val | gag Glu | gtt Val | acg Thr 1285 | cgg Arg | gtg Val | ggg Gly | gat Asp | ttc Phe 1290 | cac His | tac Tyr | gtg Val | acg Thr | ggc Gly 1295 | atg Met | 5689 |
| acc Thr | act Thr | gac Asp | aac Asn 1300 | gta Val | aag Lys | tgc Cys | ccg Pro | tgt Cys 1305 | cag Gln | gtt Val | ccg Pro | gcc Ala | ccc Pro 1310 | gaa Glu | ttc Phe | 5737 |
| ttc Phe | aca Thr | gaa Glu 1315 | gtg Val | gat Asp | ggg Gly | gtg Val | cgg Arg 1320 | ttg Leu | cac His | agg Arg | tac Tyr | gct Ala 1325 | cca Pro | gcg Ala | tgc Cys | 5785 |
| aaa Lys | ccc Pro 1330 | ctc Leu | cta Leu | cgg Arg | gag Glu | gag Glu 1335 | gtc Val | aca Thr | ttc Phe | ctg Leu | gtc Val 1340 | ggg Gly | ctc Leu | aat Asn | caa Gln | 5833 |
| tac Tyr 1345 | ctg Leu | gtt Val | ggg Gly | tca Ser | cag Gln 1350 | ctc Leu | cca Pro | tgc Cys | gag Glu | ccc Pro 1355 | gaa Glu | ccg Pro | gac Asp | gta Val | gca Ala 1360 | 5881 |
| gtg Val | ctc Leu | act Thr | tcc Ser | atg Met 1365 | ctc Leu | acc Thr | gac Asp | ccc Pro | tcc Ser 1370 | cac His | att Ile | acg Thr | gcg Ala | gag Glu 1375 | acg Thr | 5929 |
| gct Ala | aag Lys | cgt Arg | agg Arg 1380 | ctg Leu | gcc Ala | agg Arg | gga Gly | tct Ser 1385 | ccc Pro | ccc Pro | tcc Ser | ttg Leu | gcc Ala 1390 | agc Ser | tca Ser | 5977 |
| tca Ser | gct Ala | agc Ser 1395 | cag Gln | ctg Leu | tct Ser | gcg Ala | cct Pro 1400 | tcc Ser | ttg Leu | aag Lys | gca Ala | aca Thr 1405 | tgc Cys | act Thr | acc Thr | 6025 |
| cgt Arg | cat His 1410 | gac Asp | tcc Ser | ccg Pro | gac Asp | gct Ala 1415 | gac Asp | ctc Leu | atc Ile | gag Glu | gcc Ala 1420 | aac Asn | ctc Leu | ctg Leu | tgg Trp | 6073 |
| cgg Arg 1425 | cag Gln | gag Glu | atg Met | ggc Gly | ggg Gly 1430 | aac Asn | atc Ile | acc Thr | cgc Arg | gtg Val 1435 | gag Glu | tca Ser | gaa Glu | aat Asn 1440 | aag Lys | 6121 |
| gta Val | gta Val | att Ile | ttg Leu | gac Asp 1445 | tct Ser | ttc Phe | gag Glu | ccg Pro | ctc Leu 1450 | caa Gln | gcg Ala | gag Glu | gag Glu | gat Asp 1455 | gag Glu | 6169 |
| agg Arg | gaa Glu | gta Val | tcc Ser 1460 | gtt Val | ccg Pro | gcg Ala | gag Glu | atc Ile 1465 | ctg Leu | cgg Arg | agg Arg | tcc Ser | agg Arg 1470 | aaa Lys | ttc Phe | 6217 |
| cct Pro | cga Arg | gcg Ala 1475 | atg Met | ccc Pro | ata Ile | tgg Trp | gca Ala 1480 | cgc Arg | ccg Pro | gat Asp | tac Tyr | aac Asn 1485 | cct Pro | cca Pro | ctg Leu | 6265 |
| tta Leu | gag Glu 1490 | tcc Ser | tgg Trp | aag Lys | gac Asp | ccg Pro | gac Asp 1495 | tac Tyr | gtc Val | cct Pro | cca Pro 1500 | gtg Val | gta Val | cac His | ggg Gly | 6313 |
| tgt Cys 1505 | cca Pro | ctg Leu | ccg Pro | cct Pro | gcc Ala 1510 | aag Lys | gcc Ala | cct Pro | ccg Pro | ata Ile 1515 | cca Pro | cct Pro | cca Pro | cgg Arg | agg Arg 1520 | 6361 |
| aag Lys | agg Arg | acg Thr | gtt Val | gtc Val 1525 | ctg Leu | tca Ser | gaa Glu | tct Ser | acc Thr 1530 | gtg Val | tct Ser | tct Ser | gcc Ala | ttg Leu 1535 | gcg Ala | 6409 |

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| gag Glu | ctc Leu | gcc Ala | aca Thr 1540 | aag Lys | acc Thr | ttc Phe | ggc Gly 1545 | agc Ser 1545 | tcc Ser | gaa Glu | tcg Ser | tcg Ser | gcc Ala 1550 | gtc Val | gac Asp | 6457 |
| agc Ser | ggc Gly | acg Thr 1555 | gca Ala | acg Thr | gcc Ala | tct Ser | cct Pro 1560 | gac Asp | cag Gln | ccc Pro | tcc Ser | gac Asp 1565 | gac Asp | ggc Gly | gac Asp | 6505 |
| gcg Ala | gga Gly 1570 | tcc Ser | gac Asp | gtt Val | gag Glu | tcg Ser 1575 | tac Tyr | tcc Ser | tcc Ser | atg Met | ccc Pro 1580 | ccc Pro | ctt Leu | gag Glu | ggg Gly | 6553 |
| gag Glu 1585 | ccg Pro | ggg Gly | gat Asp | ccc Pro | gat Asp 1590 | ctc Leu | agc Ser | gac Asp | ggg Gly 1595 | cct Pro | tgg Trp | tct Ser | acc Thr | gta Val | agc Ser 1600 | 6601 |
| gag Glu | gag Glu | gct Ala | agt Ser 1605 | gag Glu | gac Asp | gtc Val | gtc Val | tgc Cys 1610 | tgc Cys | tcg Ser | atg Met | tcc Ser | tac Tyr | aca Thr 1615 | tgg Trp | 6649 |
| aca Thr | ggc Gly | gcc Ala | ctg Leu 1620 | atc Ile | acg Thr | cca Pro | tgc Cys | gct Ala 1625 | gcg Ala | gag Glu | gaa Glu | acc Thr | aag Lys 1630 | ctg Leu | ccc Pro | 6697 |
| atc Ile | aat Asn | gca Ala 1635 | ctg Leu | agc Ser | aac Asn | tct Ser | ttg Leu 1640 | ctc Leu | cgt Arg | cac His | cac His | aac Asn 1645 | ttg Leu | gtc Val | tat Tyr | 6745 |
| gct Ala 1650 | aca Thr | aca Thr | tct Ser | cgc Arg | agc Ser | gca Ala 1655 | agc Ser | ctg Leu | cgg Arg | cag Gln | aag Lys 1660 | aag Lys | gtc Val | acc Thr | ttt Phe | 6793 |
| gac Asp 1665 | aga Arg | ctg Leu | cag Gln | gtc Val | ctg Leu 1670 | gac Asp | gac Asp | cac His | tac Tyr | cgg Arg 1675 | gac Asp | gtg Val | ctc Leu | aag Lys | gag Glu 1680 | 6841 |
| atg Met | aag Lys | gcg Ala | aag Lys 1685 | gcg Ala | tcc Ser | aca Thr | gtt Val | aag Lys 1690 | gct Ala | aaa Lys | ctt Leu | cta Leu | tcc Ser | gtg Val 1695 | gag Glu | 6889 |
| gaa Glu | gcc Ala | tgt Cys | aag Lys 1700 | ctg Leu | acg Thr | ccc Pro | cca Pro | cat His 1705 | tcg Ser | gcc Ala | aga Arg | tct Ser | aaa Lys 1710 | ttt Phe | ggc Gly | 6937 |
| tat Tyr | ggg Gly | gca Ala 1715 | aag Lys | gac Asp | gtc Val | cgg Arg | aac Asn 1720 | cta Leu | tcc Ser | agc Ser | aag Lys | gcc Ala 1725 | gtt Val | aac Asn | cac His | 6985 |
| atc Ile 1730 | cgc Arg | tcc Ser | gtg Val | tgg Trp | aag Lys | gac Asp 1735 | ttg Leu | ctg Leu | gaa Glu | gac Asp | act Thr 1740 | gag Glu | aca Thr | cca Pro | att Ile | 7033 |
| gac Asp 1745 | acc Thr | acc Thr | atc Ile | atg Met | gca Ala 1750 | aaa Lys | aat Asn | gag Glu | gtt Val | ttc Phe 1755 | tgc Cys | gtc Val | caa Gln | cca Pro | gag Glu 1760 | 7081 |
| aag Lys | ggg Gly | ggc Gly | cgc Arg 1765 | aag Lys | cca Pro | gct Ala | cgc Arg | ctt Leu 1770 | atc Ile | gta Val | ttc Phe | cca Pro | gat Asp | ttg Leu 1775 | ggg Gly | 7129 |
| gtt Val | cgt Arg | gtg Val | tgc Cys 1780 | gag Glu | aaa Lys | atg Met | gcc Ala | ctt Leu 1785 | tac Tyr | gat Asp | gtg Val | gtc Val | tcc Ser 1790 | acc Thr | ctc Leu | 7177 |

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|--------------------|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| cct Pro | cag Gln | gcc Ala 1795 | gtg Val | atg Met | ggc Gly | tct Ser | tca Ser 1800 | tac Tyr | gga Gly | ttc Phe | caa Gln 1805 | tac Tyr 1805 | tct Ser | cct Pro | gga Gly | 7225 |
| cag Gln 1810 | cgg Arg | gtc Val | gag Glu | ttc Phe | ctg Leu 1815 | gtg Val 1815 | aat Asn | gcc Ala | tgg Trp | aaa Lys | gcg Ala 1820 | aag Lys | aaa Lys | tgc Cys | cct Pro | 7273 |
| atg Met 1825 | ggc Gly | ttc Phe | gca Ala | tat Tyr | gac Asp 1830 | acc Thr | cgc Arg | tgt Cys | ttt Phe | gac Asp 1835 | tca Ser | acg Thr | gtc Val | act Thr | gag Glu 1840 | 7321 |
| aat Asn | gac Asp | atc Ile | cgt Arg | gtt Val 1845 | gag Glu | gag Glu | tca Ser | atc Ile | tac Tyr 1850 | caa Gln | tgt Cys | tgt Cys | gac Asp | ttg Leu 1855 | gcc Ala | 7369 |
| ccc Pro | gaa Glu | gcc Ala 1860 | aga Arg | cag Gln | gcc Ala | ata Ile | agg Arg | tcg Ser 1865 | ctc Leu | aca Thr | gag Glu | cgg Arg | ctt Leu 1870 | tac Tyr | atc Ile | 7417 |
| ggg Gly | ggc Gly | ccc Pro 1875 | ctg Leu | act Thr | aat Asn | tct Ser | aaa Lys 1880 | ggg Gly | cag Gln | aac Asn | tgc Cys | ggc Gly 1885 | tat Tyr | cgc Arg | cgg Arg | 7465 |
| tgc Cys 1890 | cgc Arg | gcg Ala | agc Ser | ggt Gly | gta Val | ctg Leu 1895 | acg Thr | acc Thr | agc Ser | tgc Cys | ggt Gly 1900 | aat Asn | acc Thr | ctc Leu | aca Thr | 7513 |
| tgt Cys 1905 | tac Tyr | ttg Leu | aag Lys | gcc Ala | gct Ala 1910 | gcg Ala | gcc Ala | tgt Cys | cga Arg | gct Ala 1915 | gcg Ala | aag Lys | ctc Leu | cag Gln | gac Asp 1920 | 7561 |
| tgc Cys | acg Thr | atg Met | ctc Leu | gta Val 1925 | tgc Cys | gga Gly | gac Asp | gac Asp | ctt Leu 1930 | gtc Val | gtt Val | atc Ile | tgt Cys | gaa Glu 1935 | agc Ser | 7609 |
| gcg Ala | ggg Gly | acc Thr | caa Gln 1940 | gag Glu | gac Asp | gag Glu | gcg Ala | agc Ser 1945 | cta Leu | cgg Arg | gcc Ala | ttc Phe | acg Thr 1950 | gag Glu | gct Ala | 7657 |
| atg Met | act Thr | aga Arg 1955 | tac Tyr | tct Ser | gcc Ala | ccc Pro | cct Pro 1960 | ggg Gly | gac Asp | ccg Pro | ccc Pro | aaa Lys 1965 | cca Pro | gaa Glu | tac Tyr | 7705 |
| gac Asp 1970 | ttg Leu | gag Glu | ttg Leu | ata Ile | aca Thr | tca Ser 1975 | tgc Cys | tcc Ser | tcc Ser | aat Asn | gtg Val 1980 | tca Ser | gtc Val | gcg Ala | cac His | 7753 |
| gat Asp 1985 | gca Ala | tct Ser | ggc Gly | aaa Lys | agg Arg 1990 | gtg Val | tac Tyr | tat Tyr | ctc Leu | acc Thr 1995 | cgt Arg | gac Asp | ccc Pro | acc Thr 2000 | acc Thr | 7801 |
| ccc Pro | ctt Leu | gcg Ala | cgg Arg | gct Ala 2005 | gcg Ala | tgg Trp | gag Glu | aca Thr | gct Ala 2010 | aga Arg | cac His | act Thr | cca Pro | gtc Val 2015 | aat Asn | 7849 |
| tcc Ser | tgg Trp | cta Leu 2020 | ggc Gly | aac Asn | atc Ile | atc Ile | atg Met 2025 | tat Tyr | gcg Ala | ccc Pro | acc Thr | ttg Leu 2030 | tgg Trp | gca Ala | agg Arg | 7897 |
| atg Met | atc Ile | ctg Leu 2035 | atg Met | act Thr | cat His | ttc Phe | ttc Phe 2040 | tcc Ser | atc Ile | ctt Leu | cta Leu | gct Ala 2045 | cag Gln | gaa Glu | caa Gln | 7945 |

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|--|------|
| ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att | 7993 |
| Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile | |
| 2050 2055 2060 | |
| gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc | 8041 |
| Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser | |
| 2065 2070 2075 2080 | |
| gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct | 8089 |
| Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala | |
| 2085 2090 2095 | |
| tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat | 8137 |
| Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His | |
| 2100 2105 2110 | |
| cgg gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct | 8185 |
| Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala | |
| 2115 2120 2125 | |
| gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc | 8233 |
| Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu | |
| 2130 2135 2140 | |
| aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg | 8281 |
| Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp | |
| 2145 2150 2155 2160 | |
| ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt | 8329 |
| Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg | |
| 2165 2170 2175 | |
| gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg | 8377 |
| Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Leu Ser Val Gly | |
| 2180 2185 2190 | |
| gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca | 8427 |
| Val Gly Ile Tyr Leu Leu Pro Asn Arg * | |
| 2195 2200 | |
| ggccaatagg ccattcctgtt tttttttttt tttttttttt tttttttttt tttttttttt | 8487 |
| tttttttttt tttttttttt ttttttcctc ttttttttcc ttttctttcc ttttggtggct | 8547 |
| ccattcttagc cctagtcacg gctagctgtg aaaggtccgt gagccgcttg actgcagaga | 8607 |
| gtgctgatac tggcctctct gcagatcaag t | 8638 |

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| tcttcacgca | gaaagcgtct | agccatggcg | ttagtatgag | tgtcgtgcag | cctccaggac | 120 |
| ccccctccc | gggagagcca | tagtggtctg | cggaaccggt | gagtaaccg | gaattgccag | 180 |
| gacgaccggg | tcctttcttg | gatcaaccg | ctcaatgcct | ggagatttgg | gcgtgcccc | 240 |
| gcgagactgc | tagccgagta | gtgttggtgc | gcgaaaggcc | ttgtggtact | gcctgatagg | 300 |
| gtgcttgca | gtgccccggg | aggtctcgta | gaccgtgcac | catgagcacg | aatcctaaac | 360 |
| ctcaaagaaa | aaccaaagg | cgcgccatga | ttgaacaaga | tggattgcac | gcaggttctc | 420 |
| cggccgcttg | ggtggagagg | ctattcggct | atgactgggc | acaacagaca | atcggctgct | 480 |
| ctgatgccgc | cgtgttccgg | ctgtcagcgc | aggggcgccc | ggttcttttt | gtcaagaccg | 540 |

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|---------------------|-------------|---|-------------|-------------|-------------|------|
| acctgtccgg | tgccctgaat | gaactgcagg | acgaggcagc | gcggctatcg | tggctggcca | 600 |
| cgacgggctg | tccttgcgca | gctgtgctcg | acgttgtcac | tgaagcggga | agggactggc | 660 |
| tgctattggg | cgaagtgccg | gggcaggatc | tcctgtcatc | tcaccttgct | cctgccgaga | 720 |
| aagtattccat | catggctgat | gcaatgcggc | ggctgcatac | gcttgatccg | gctacctgcc | 780 |
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| atggctctcc | tcaagcgtat | tcaacaaggg | gctgaaggat | gcccagaagg | taccccatcg | 1680 |
| tatgggatct | gatctggggc | ctcgggtgcac | atgctttaca | tgtgtttagt | cgagggttaa | 1740 |
| aaacgtctag | gccccccgaa | ccacggggac | gtggttttcc | tttgaaaaac | acgataatac | 1800 |
| c atg gac | cgg gag atg | gca gca tgc | tgc gga ggc | gcg gtt ttc | gta ggt | 1849 |
| Met Asp Arg Glu Met | | Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly | | | | |
| 1 | 5 | | 10 | | 15 | |

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|---|----------|
| ctg ata ctc ttg acc ttg tca ccg cac tat aag ctg ttc ctc gct agg | 1897 |
| Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg | |
| | 20 25 30 |

| | |
|---|----------|
| ctc ata tgg tgg tta caa tat ttt atc acc agg gcc gag gca cac ttg | 1945 |
| Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu | |
| | 35 40 45 |

| | |
|---|----------|
| caa gtg tgg atc ccc ccc ctc aac gtt cgg ggg ggc cgc gat gcc gtc | 1993 |
| Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val | |
| | 50 55 60 |

| | |
|---|-------------|
| atc ctc ctc acg tgc gcg atc cac cca gag cta atc ttt acc atc acc | 2041 |
| Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr | |
| | 65 70 75 80 |

| | |
|---|----------|
| aaa atc ttg ctc gcc ata ctc ggt cca ctc atg gtg ctc cag gct ggt | 2089 |
| Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly | |
| | 85 90 95 |

| | |
|---|-------------|
| ata acc aaa gtg ccg tac ttc gtg cgc gca cac ggg ctc att cgt gca | 2137 |
| Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala | |
| | 100 105 110 |

| | |
|---|-------------|
| tgc atg ctg gtg ccg aag gtt gct ggg ggt cat tat gtc caa atg gct | 2185 |
| Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala | |
| | 115 120 125 |

| | |
|---|-------------|
| ctc atg aag ttg gcc gca ctg aca ggt acg tac gtt tat gac cat ctc | 2233 |
| Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu | |
| | 130 135 140 |

| | |
|---|-----------------|
| acc cca ctg ccg gac tgg gcc cac gcg ggc cta cga gac ctt gcg gtg | 2281 |
| Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val | |
| | 145 150 155 160 |

| | |
|---|-------------|
| gca gtt gag ccc gtc gtc ttc tct gat atg gag acc aag gtt atc acc | 2329 |
| Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr | |
| | 165 170 175 |

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| tgg Trp | ggg Gly | gca Ala | gac Asp 180 | acc Thr | gcg Ala | gcg Ala | tgt Cys | ggg Gly 185 | gac Asp | atc Ile | atc Ile | ttg Leu | ggc Gly 190 | ctg Leu | ccc Pro | 2377 |
| gtc Val | tcc Ser | gcc Ala 195 | cgc Arg | agg Arg | ggg Gly | agg Arg | gag Glu 200 | ata Ile | cat His | ctg Leu | gga Gly | ccg Pro 205 | gca Ala | gac Asp | agc Ser | 2425 |
| ctt Leu | gaa Glu 210 | ggg Gly | cag Gln | ggg Gly | tgg Trp | cga Arg 215 | ctc Leu | ctc Leu | gcg Ala | cct Pro | att Ile 220 | acg Thr | gcc Ala | tac Tyr | tcc Ser | 2473 |
| caa Gln 225 | cag Gln | acg Thr | cga Arg | ggc Gly | cta Leu 230 | ctt Leu | ggc Gly | tgc Cys | atc Ile | atc Ile 235 | acc Thr | agc Ser | ctc Leu | aca Thr | ggc Gly 240 | 2521 |
| cgg Arg | gac Asp | agg Arg | aac Asn 245 | cag Gln | gtc Val | gag Glu | ggg Gly | gag Glu | gtc Val 250 | caa Gln | gtg Val | gtc Val | tcc Ser | acc Thr 255 | gca Ala | 2569 |
| aca Thr | caa Gln | tct Ser | ttc Phe 260 | ctg Leu | gcg Ala | acc Thr | tgc Cys | gtc Val 265 | aat Asn | ggc Gly | gtg Val | tgt Cys | tgg Trp 270 | act Thr | gtc Val | 2617 |
| tat Tyr | cat His | ggg Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | atc Ile | 2665 |
| acc Thr | caa Gln 290 | atg Met | tac Tyr | acc Thr | aat Asn | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | gcg Ala | 2713 |
| ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | gac Asp 320 | 2761 |
| ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | aag Lys | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | cgg Arg | 2809 |
| ggc Gly | gac Asp | agc Ser | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | cgg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | ttg Leu | 2857 |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggg Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gaa Glu | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 |
| ttc Phe | acg Thr | gac Asp | aac Asn 405 | tcg Ser | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | gtg Val | 3049 |
| gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggg Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | ccg Pro | 3097 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggg Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggg Gly | 3193 |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggg Gly | gcc Ala 480 | 3241 |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggg Gly | ggg Gly 495 | tgc Cys | 3289 |
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile 505 | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 |
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 |
| aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgc Cys | gat Asp | 3577 |
| gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | tat Tyr | 3625 |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggg Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | ggc Gly | gtc Val | 4057 |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gct Ala | gcg Ala | tat Tyr | 4393 |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 |
| gga Gly | agg Arg | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgt Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 |
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 |
| aca Thr | gcc Ala 930 | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 |

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|--------------------|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | atc Ile 960 | 4681 |
| agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | ccc Pro | 4729 |
| gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe | aca Thr 985 | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | ctc Leu | 4777 |
| acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly | gga Gly 1005 | tgg Trp | gtg Val | gcc Ala | 4825 |
| gcc Ala 1010 | caa Gln | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser 1015 | gct Ala | gct Ala | tcc Ser | gct Ala | ttc Phe 1020 | gta Val | ggc Gly | gcc Ala | ggc Gly | 4873 |
| atc Ile 1025 | gct Ala | gga Gly | gcg Ala | gct Ala | gtt Val 1030 | ggc Gly | agc Ser | ata Ile | ggc Gly | ctt Leu 1035 | ggg Gly | aag Lys | gtg Val | ctt Leu | gtg Val 1040 | 4921 |
| gat Asp | att Ile | ttg Leu | gca Ala | ggt Gly 1045 | tat Tyr | gga Gly | gca Ala | ggg Gly | gtg Val 1050 | gca Ala | ggc Gly | gcg Ala | ctc Leu | gtg Val 1055 | gcc Ala | 4969 |
| ttt Phe | aag Lys | gtc Val | atg Met 1060 | agc Ser | ggc Gly | gag Glu | atg Met | ccc Pro 1065 | tcc Ser | acc Thr | gag Glu | gac Asp | ctg Leu 1070 | gtt Val | aac Asn | 5017 |
| cta Leu | ctc Leu | cct Pro 1075 | gct Ala | atc Ile | ctc Leu | tcc Ser | cct Pro 1080 | ggc Gly | gcc Ala | cta Leu | gtc Val | gtc Val 1085 | ggg Gly | gtc Val | gtg Val | 5065 |
| tgc Cys 1090 | gca Ala | gcg Ala | ata Ile | ctg Leu | cgt Arg | cgg Arg 1095 | cac His | gtg Val | ggc Gly | cca Pro | ggg Gly 1100 | gag Glu | ggg Gly | gct Ala | gtg Val | 5113 |
| cag Gln 1105 | tgg Trp | atg Met | aac Asn | cgg Arg | ctg Leu 1110 | ata Ile | gcg Ala | ttc Phe | gct Ala | tcg Ser 1115 | cgg Arg | ggt Gly | aac Asn | cac His | gtc Val 1120 | 5161 |
| tcc Ser | ccc Pro | acg Thr | cac His | tat Tyr 1125 | gtg Val | cct Pro | gag Glu | agc Ser | gac Asp 1130 | gct Ala | gca Ala | gca Ala | cgt Arg | gtc Val 1135 | act Thr | 5209 |
| cag Gln | atc Ile | ctc Leu | tct Ser 1140 | agt Ser | ctt Leu | acc Thr | atc Ile | act Thr 1145 | cag Gln | ctg Leu | ctg Leu | aag Lys | agg Arg 1150 | ctt Leu | cac His | 5257 |
| cag Gln 1155 | tgg Trp | atc Ile | aac Asn | gag Glu | gac Asp | tgc Cys | tcc Ser 1160 | acg Thr | cca Pro | tgc Cys | tcc Ser | ggc Gly 1165 | tcg Ser | tgg Trp | cta Leu | 5305 |
| aga Arg 1170 | gat Asp | gtt Val | tgg Trp | gat Asp | tgg Trp | ata Ile 1175 | tgc Cys | acg Thr | gtg Val | ttg Leu | act Thr 1180 | gat Asp | ttc Phe | aag Lys | gcc Ala | 5353 |
| tgg Trp 1185 | ctc Leu | cag Gln | tcc Ser | aag Lys | ctc Leu 1190 | ctg Leu | ccg Pro | cga Arg | ttg Leu | ccg Pro 1195 | gga Gly | gtc Val | ccc Pro | ttc Phe | ttc Phe 1200 | 5401 |

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|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| tca | tgt | caa | cgt | ggg | tac | aag | gga | gtc | tgg | cgg | ggc | gac | ggc | atc | atg | 5449 |
| Ser | Cys | Gln | Arg | Gly | Tyr | Lys | Gly | Val | Trp | Arg | Gly | Asp | Gly | Ile | Met | |
| | | | | 1205 | | | | | 1210 | | | | | 1215 | | |
| caa | acc | acc | tgc | cca | tgt | gga | gca | cag | atc | acc | gga | cat | gtg | aaa | aac | 5497 |
| Gln | Thr | Thr | Cys | Pro | Cys | Gly | Ala | Gln | Ile | Thr | Gly | His | Val | Lys | Asn | |
| | | | 1220 | | | | | 1225 | | | | | 1230 | | | |
| tgt | tcc | atg | agg | atc | gtg | ggg | cct | agg | acc | tgt | agt | aac | acg | tgg | cat | 5545 |
| Cys | Ser | Met | Arg | Ile | Val | Gly | Pro | Arg | Thr | Cys | Ser | Asn | Thr | Trp | His | |
| | | 1235 | | | | | 1240 | | | | | 1245 | | | | |
| gga | aca | ttc | ccc | att | aac | gcg | tac | acc | acg | ggc | ccc | tgc | acg | ccc | tcc | 5593 |
| Gly | Thr | Phe | Pro | Ile | Asn | Ala | Tyr | Thr | Thr | Gly | Pro | Cys | Thr | Pro | Ser | |
| | 1250 | | | | | 1255 | | | | | 1260 | | | | | |
| ccg | gcg | cca | aat | tat | tct | agg | gcg | ctg | tgg | cgg | gtg | gct | gct | gag | gag | 5641 |
| Pro | Ala | Pro | Asn | Tyr | Ser | Arg | Ala | Leu | Trp | Arg | Val | Ala | Ala | Glu | Glu | |
| 1265 | | | | | 1270 | | | | 1275 | | | | | 1280 | | |
| tac | gtg | gag | gtt | acg | cga | gtg | ggg | gat | ttc | cac | tac | gtg | acg | ggc | atg | 5689 |
| Tyr | Val | Glu | Val | Thr | Arg | Val | Gly | Asp | Phe | His | Tyr | Val | Thr | Gly | Met | |
| | | | | 1285 | | | | | 1290 | | | | | 1295 | | |
| acc | act | gac | aac | gta | aag | tgc | ccg | tgt | cag | gtt | ccg | gcc | ccc | gaa | ttc | 5737 |
| Thr | Thr | Asp | Asn | Val | Lys | Cys | Pro | Cys | Gln | Val | Pro | Ala | Pro | Glu | Phe | |
| | | | 1300 | | | | | 1305 | | | | | 1310 | | | |
| ttc | aca | gaa | gtg | gat | ggg | gtg | cgg | ttg | cac | agg | tac | gct | cca | gcg | tgc | 5785 |
| Phe | Thr | Glu | Val | Asp | Gly | Val | Arg | Leu | His | Arg | Tyr | Ala | Pro | Ala | Cys | |
| | | 1315 | | | | | 1320 | | | | | 1325 | | | | |
| aaa | ccc | ctc | cta | cgg | gag | gag | gtc | aca | ttc | ctg | gtc | ggg | ctc | aat | caa | 5833 |
| Lys | Pro | Leu | Leu | Arg | Glu | Glu | Val | Thr | Phe | Leu | Val | Gly | Leu | Asn | Gln | |
| | 1330 | | | | 1335 | | | | | | 1340 | | | | | |
| tac | ccg | gtt | ggg | tca | cag | ctc | cca | tgc | gag | ccc | gaa | ctg | gac | gta | gca | 5881 |
| Tyr | Pro | Val | Gly | Ser | Gln | Leu | Pro | Cys | Glu | Pro | Glu | Leu | Asp | Val | Ala | |
| 1345 | | | | 1350 | | | | | 1355 | | | | | | 1360 | |
| gtg | ctc | act | tcc | atg | ctc | acc | gac | ccc | tcc | cac | att | acg | gcg | gag | acg | 5929 |
| Val | Leu | Thr | Ser | Met | Leu | Thr | Asp | Pro | Ser | His | Ile | Thr | Ala | Glu | Thr | |
| | | | | 1365 | | | | 1370 | | | | | | 1375 | | |
| gct | aag | cgt | agg | ctg | gcc | agg | gga | tct | ccc | ccc | tcc | ttg | gcc | agc | tca | 5977 |
| Ala | Lys | Arg | Arg | Leu | Ala | Arg | Gly | Ser | Pro | Pro | Ser | Leu | Ala | Ser | Ser | |
| | | | 1380 | | | | 1385 | | | | | 1390 | | | | |
| tca | gct | agc | cag | ctg | tct | gcg | cct | tcc | ttg | aag | gca | aca | tgc | act | acc | 6025 |
| Ser | Ala | Ser | Gln | Leu | Ser | Ala | Pro | Ser | Leu | Lys | Ala | Thr | Cys | Thr | Thr | |
| | | 1395 | | | | | 1400 | | | | | 1405 | | | | |
| cgt | cat | gac | tcc | ccg | gac | gct | gac | ctc | atc | gag | gcc | aac | ctc | ctg | tgg | 6073 |
| Arg | His | Asp | Ser | Pro | Asp | Ala | Asp | Leu | Ile | Glu | Ala | Asn | Leu | Leu | Trp | |
| | 1410 | | | | 1415 | | | | | | 1420 | | | | | |
| cgg | cag | gag | atg | ggc | ggg | aac | atc | acc | cgc | gtg | gag | tca | gag | aat | aag | 6121 |
| Arg | Gln | Glu | Met | Gly | Gly | Asn | Ile | Thr | Arg | Val | Glu | Ser | Glu | Asn | Lys | |
| 1425 | | | | 1430 | | | | | | 1435 | | | | | 1440 | |
| gta | gta | att | ttg | gac | tct | ttc | gag | ccg | ctc | caa | gcg | gag | gag | gat | gag | 6169 |
| Val | Val | Ile | Leu | Asp | Ser | Phe | Glu | Pro | Leu | Gln | Ala | Glu | Glu | Asp | Glu | |
| | | | | 1445 | | | | | 1450 | | | | | 1455 | | |

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|---|------|
| agg gaa gta tcc gtt ccg gcg gag atc ctg cgg agg tcc agg aaa ttc | 6217 |
| Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe | |
| 1460 1465 1470 | |
| cct cga gcg atg ccc ata tgg gca cgc ccg gat tac aac cct cca ctg | 6265 |
| Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu | |
| 1475 1480 1485 | |
| tta gag tcc tgg aag gac ccg gac tac gtc cct cca gtg gta cac ggg | 6313 |
| Leu Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly | |
| 1490 1495 1500 | |
| tgt cca ttg ccg cct gcc aag gcc cct ccg ata cca cct cca cgg agg | 6361 |
| Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg | |
| 1505 1510 1515 1520 | |
| aag agg acg gtt gtc ctg tca gaa tct acc gtg tct tct gcc ttg gcg | 6409 |
| Lys Arg Thr Val Val Leu Ser Glu Ser Thr Val Ser Ser Ala Leu Ala | |
| 1525 1530 1535 | |
| gag ctc gcc aca aag acc ttc ggc agc tcc gaa tcg tcg gcc gtc gac | 6457 |
| Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Glu Ser Ser Ala Val Asp | |
| 1540 1545 1550 | |
| agc ggc acg gca acg gcc tct cct gac cag ccc tcc gac gac ggc gac | 6505 |
| Ser Gly Thr Ala Thr Ala Ser Pro Asp Gln Pro Ser Asp Asp Gly Asp | |
| 1555 1560 1565 | |
| gcg gga tcc gac gtt gag tcg tac tcc tcc atg ccc ccc ctt gag ggg | 6553 |
| Ala Gly Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly | |
| 1570 1575 1580 | |
| gag ccg ggg gat ccc gat ctc agc gac ggg tct tgg tct acc gta agc | 6601 |
| Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser | |
| 1585 1590 1600 | |
| gag gag gct agt gag gac gtc gtc tgc tgc tcg atg tcc tac aca tgg | 6649 |
| Glu Glu Ala Ser Glu Asp Val Val Cys Cys Ser Met Ser Tyr Thr Trp | |
| 1605 1610 1615 | |
| aca ggc gcc ctg atc acg cca tgc gct gcg gag gaa acc aag ctg ccc | 6697 |
| Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro | |
| 1620 1625 1630 | |
| atc aat gca ctg agc aac tct ttg ctc cgt cac cac aac ttg gtc tat | 6745 |
| Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr | |
| 1635 1640 1645 | |
| gct aca aca tct cgc agc gca agc ctg cgg cag aag aag gtc acc ttt | 6793 |
| Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe | |
| 1650 1655 1660 | |
| gac aga ctg cag gtc ctg gac gac cac tac cgg gac gtg ctc aag gag | 6841 |
| Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu | |
| 1665 1670 1675 1680 | |
| atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag | 6889 |
| Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu | |
| 1685 1690 1695 | |
| gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc | 6937 |
| Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly | |
| 1700 1705 1710 | |

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|---|------|
| tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac | 6985 |
| Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His | |
| 1715 1720 1725 | |
| atc cgc tcc gtg tgg aag gac ttg ctg gaa gac act gag aca cca att | 7033 |
| Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile | |
| 1730 1735 1740 | |
| gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag | 7081 |
| Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu | |
| 1745 1750 1755 1760 | |
| aag ggg ggc cgc aag cca gct cgc ctt atc gta ttc cca gat ttg ggg | 7129 |
| Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly | |
| 1765 1770 1775 | |
| gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc | 7177 |
| Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu | |
| 1780 1785 1790 | |
| cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga | 7225 |
| Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly | |
| 1795 1800 1805 | |
| cag cgg gtc gag ttc ctg gtg aat gcc tgg aaa gcg aag aaa tgc cct | 7273 |
| Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro | |
| 1810 1815 1820 | |
| atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag | 7321 |
| Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu | |
| 1825 1830 1835 1840 | |
| aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc | 7369 |
| Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala | |
| 1845 1850 1855 | |
| ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc | 7417 |
| Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile | |
| 1860 1865 1870 | |
| ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg | 7465 |
| Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg | |
| 1875 1880 1885 | |
| tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc aca | 7513 |
| Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr | |
| 1890 1895 1900 | |
| tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac | 7561 |
| Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp | |
| 1905 1910 1915 1920 | |
| tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc | 7609 |
| Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser | |
| 1925 1930 1935 | |
| gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct | 7657 |
| Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala | |
| 1940 1945 1950 | |
| atg act aga tac tct gcc ccc cct ggg gac ccg ccc aaa cca gaa tac | 7705 |
| Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr | |
| 1955 1960 1965 | |

| | | | | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| gac Asp 1970 | ttg Leu | gag Glu | ttg Leu | ata Ile | aca Thr | tca Ser 1975 | tgc Cys | tcc Ser | tcc Ser | aat Asn | gtg Val 1980 | tca Ser | gtc Val | gcg Ala | cac His | 7753 |
| gat Asp 1985 | gca Ala | tct Ser | ggc Gly | aaa Lys | agg Arg 1990 | gtg Val | tac Tyr | tat Tyr | ctc Leu | acc Thr 1995 | cgt Arg | gac Asp | ccc Pro | acc Thr | acc Thr 2000 | 7801 |
| ccc Pro | ctt Leu | gcg Ala | cgg Arg | gct Ala 2005 | gcg Ala | tgg Trp | gag Glu | aca Thr | gct Ala 2010 | aga Arg | cac His | act Thr | cca Pro | gtc Val 2015 | aat Asn | 7849 |
| tcc Ser | tgg Trp | cta Leu | ggc Gly 2020 | aac Asn | atc Ile | atc Ile | atg Met | tat Tyr 2025 | gcg Ala | ccc Pro | acc Thr | ttg Leu | tgg Trp 2030 | gca Ala | agg Arg | 7897 |
| atg Met | atc Ile | ctg Leu 2035 | atg Met | act Thr | cat His | ttc Phe | ttc Phe 2040 | tcc Ser | atc Ile | ctt Leu | cta Leu | gct Ala 2045 | cag Gln | gaa Glu | caa Gln | 7945 |
| ctt Leu | gaa Glu 2050 | aaa Lys | gcc Ala | cta Leu | gat Asp | tgt Cys 2055 | cag Gln | atc Ile | tac Tyr | ggg Gly | gcc Ala 2060 | tgt Cys | tac Tyr | tcc Ser | att Ile | 7993 |
| gag Glu 2065 | cca Pro | ctt Leu | gac Asp | cta Leu | cct Pro 2070 | cag Gln | atc Ile | att Ile | caa Gln | cga Arg 2075 | ctc Leu | cac His | ggc Gly | ctt Leu | agc Ser 2080 | 8041 |
| gca Ala | ttt Phe | tca Ser | ctc Leu | cat His 2085 | agt Ser | tac Tyr | tct Ser | cca Pro | ggt Gly 2090 | gag Glu | atc Ile | aat Asn | agg Arg | gtg Val 2095 | gct Ala | 8089 |
| tca Ser | tgc Cys | ctc Leu | agg Arg 2100 | aaa Lys | ctt Leu | ggg Gly | gta Val | ccg Pro 2105 | ccc Pro | ttg Leu | cga Arg | gtc Val | tgg Trp 2110 | aga Arg | cat His | 8137 |
| cgg Arg | gcc Ala | aga Arg 2115 | agt Ser | gtc Val | cgc Arg | gct Ala | agg Arg 2120 | cta Leu | ctg Leu | tcc Ser | cag Gln | ggg Gly 2125 | ggg Gly | agg Arg | gct Ala | 8185 |
| gcc Ala | act Thr 2130 | tgt Cys | ggc Gly | aag Lys | tac Tyr | ctc Leu 2135 | ttc Phe | aac Asn | tgg Trp | gca Ala | gta Val 2140 | agg Arg | acc Thr | aag Lys | ctc Leu | 8233 |
| aaa Lys 2145 | ctc Leu | act Thr | cca Pro | atc Ile | ccg Pro 2150 | gct Ala | gcg Ala | tcc Ser | cag Gln | ttg Leu 2155 | gat Asp | tta Leu | tcc Ser | agc Ser | tgg Trp 2160 | 8281 |
| ttc Phe | gtt Val | gct Ala | ggt Gly | tac Tyr 2165 | agc Ser | ggg Gly | gga Gly | gac Asp | ata Ile 2170 | tat Tyr | cac His | agc Ser | ctg Leu | tct Ser 2175 | cgt Arg | 8329 |
| gcc Ala | cga Arg | ccc Pro | cgc Arg 2180 | tgg Trp | ttc Phe | atg Met | tgg Trp | tgc Cys 2185 | cta Leu | ctc Leu | cta Leu | ctt Leu | tct Ser 2190 | gta Val | ggg Gly | 8377 |
| gta Val | ggc Gly 2195 | atc Ile | tat Tyr | cta Leu | ctc Leu | ccc Pro | aac Asn 2200 | cga Arg | tga * | acggggagct | aaacactcca | | | | | 8427 |
| ggccaatagg | ccatcctggt | ttttccctt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | 8487 |
| ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | ttttttttt | 8547 |
| ccatccttagc | cctagtcacg | gctagctgtg | aaaggtccgt | gagccgcttg | actgcagaga | | | | | | | | | | | 8607 |

gtgctgatac tggcctctct gcagatcaag t 8638

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| <400> 18 tcccggggca ctcgcaagca ccctatcagg | 30 |
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 1 5 10 15

ctg ata ctc ttg acc ttg tca ccg cac tat aag ctg ttc ctc gct agg 1897
 Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg
 20 25 30

ctc ata tgg tgg tta caa tat ttt atc acc agg gcc gag gca cac ttg 1945
 Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu
 35 40 45

caa gtg tgg atc ccc ccc ctc aac gtt cgg ggg ggc cgc gat gcc gtc 1993
 Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val
 50 55 60

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| atc Ile 65 | ctc Leu | ctc Leu | acg Thr | tgc Cys | gcg Ala 70 | atc Ile | cac His | cca Pro | gag Glu | cta Leu 75 | atc Ile | ttt Phe | acc Thr | atc Ile | acc Thr 80 | 2041 |
| aaa Lys | atc Ile | ttg Leu | ctc Leu | gcc Ala 85 | ata Ile | ctc Leu | ggg Gly | cca Pro | ctc Leu 90 | atg Met | gtg Val | ctc Leu | cag Gln | gct Ala 95 | ggg Gly | 2089 |
| ata Ile | acc Thr | aaa Lys | gtg Val 100 | ccg Pro | tac Tyr | ttc Phe | gtg Val | cgc Arg 105 | gca Ala | cac His | ggg Gly | ctc Leu | att Ile 110 | cgt Arg | gca Ala | 2137 |
| tgc Cys | atg Met | ctg Leu 115 | gtg Val | cgg Arg | aag Lys | gtt Val | gct Ala 120 | ggg Gly | ggg Gly | cat His | tat Tyr | gtc Val 125 | caa Gln | atg Met | gct Ala | 2185 |
| ctc Leu | atg Met 130 | aag Lys | ttg Leu | gcc Ala | gca Ala | ctg Leu 135 | aca Thr | ggg Gly | acg Thr | tac Tyr | gtt Val 140 | tat Tyr | gac Asp | cat His | ctc Leu | 2233 |
| acc Thr 145 | cca Pro | ctg Leu | cgg Arg | gac Asp | tgg Trp 150 | gcc Ala | cac His | gcg Ala | ggc Gly | cta Leu 155 | cga Arg | gac Asp | ctt Leu | gcg Ala | gtg Val 160 | 2281 |
| gca Ala | gtt Val | gag Glu | ccc Pro | gtc Val 165 | gtc Val | ttc Phe | tct Ser | gat Asp | atg Met 170 | gag Glu | acc Thr | aag Lys | gtt Val | atc Ile 175 | acc Thr | 2329 |
| tgg Trp | ggg Gly | gca Ala | gac Asp 180 | acc Thr | gcg Ala | gcg Ala | tgt Cys | ggg Gly 185 | gac Asp | atc Ile | atc Ile | ttg Leu | ggc Gly 190 | ctg Leu | ccc Pro | 2377 |
| gtc Val | tcc Ser | gcc Ala 195 | cgc Arg | agg Arg | ggg Gly | agg Arg | gag Glu 200 | ata Ile | cat His | ctg Leu | gga Gly | ccg Pro 205 | gca Ala | gac Asp | agc Ser | 2425 |
| ctt Leu | gaa Glu 210 | ggg Gly | cag Gln | ggg Gly | tgg Trp | cga Arg 215 | ctc Leu | ctc Leu | gcg Ala | cct Pro | att Ile 220 | acg Thr | gcc Ala | tac Tyr | tcc Ser | 2473 |
| caa Gln 225 | cag Gln | acg Thr | cga Arg | ggc Gly | cta Leu 230 | ctt Leu | ggc Gly | tgc Cys | atc Ile | atc Ile 235 | act Thr | agc Ser | ctc Leu | aca Thr | ggc Gly 240 | 2521 |
| cgg Arg | gac Asp | agg Arg | aac Asn | cag Gln 245 | gtc Val | gag Glu | ggg Gly | gag Glu | gtc Val 250 | caa Gln | gtg Val | gtc Val | tcc Ser | acc Thr 255 | gca Ala | 2569 |
| aca Thr | caa Gln | tct Ser | ttc Phe 260 | ctg Leu | gcg Ala | acc Thr | tgc Cys | gtc Val 265 | aat Asn | ggc Gly | gtg Val | tgt Cys | tgg Trp 270 | act Thr | gtc Val | 2617 |
| tat Tyr | cat His | ggg Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | atc Ile | 2665 |
| acc Thr | caa Gln 290 | atg Met | tac Tyr | acc Thr | aat Asn | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | gcg Ala | 2713 |
| ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | gac Asp 320 | 2761 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | agg Arg | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | cgg Arg | 2809 |
| ggc Gly | gac Asp | agc Ser | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | agg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | ttg Leu | 2857 |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggg Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gaa Glu | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 |
| ttc Phe | acg Thr | gac Asp | aac Asn | tcg Ser 405 | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | gtg Val | 3049 |
| gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggg Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | ccg Pro | 3097 |
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggg Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggg Gly | 3193 |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggg Gly | gcc Ala 480 | 3241 |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggg Gly 495 | ggg Gly | tgc Cys | 3289 |
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile | ata Ile 505 | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 |
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
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| gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | tat Tyr | 3625 |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggt Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala | gag Glu 725 | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | agc Ser | gtc Val | 4057 |
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |

| | | | | | | | | | | | | | | | | |
|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gcc Ala | gcg Ala | tat Tyr | 4393 |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 |
| gga Gly | aag Lys | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgc Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 |
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 |
| aca Thr | gcc Ala 930 | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 |
| tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | atc Ile 960 | 4681 |
| agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | ccc Pro | 4729 |
| gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe 985 | aca Thr | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | ctc Leu | 4777 |
| acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly 1005 | gga Gly 1005 | tgg Trp | gtg Val | gcc Ala | 4825 |
| gcc Ala 1010 | caa Gln | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser 1015 | gct Ala | gct Ala | tct Ser | gct Ala | ttc Phe 1020 | gta Val | ggc Gly | gcc Ala | ggc Gly | 4873 |
| atc Ile 1025 | gct Ala | gga Gly | gcg Ala | gct Ala | gtt Val 1030 | ggc Gly | agc Ser | ata Ile | ggc Gly | ctt Leu 1035 | ggg Gly | aag Lys | gtg Val | ctt Leu | gtg Val 1040 | 4921 |
| gat Asp | att Ile | ttg Leu | gca Ala | ggc Gly 1045 | tat Tyr | gga Gly | gca Ala | ggg Gly | gtg Val 1050 | gca Ala | ggc Gly | gcg Ala | ctc Leu | gtg Val 1055 | gcc Ala | 4969 |
| ttt Phe | aag Lys | gtc Val | atg Met 1060 | agc Ser | ggc Gly | gag Glu | atg Met | ccc Pro 1065 | tcc Ser | acc Thr | gag Glu | gac Asp | ctg Leu 1070 | gtt Val | aac Asn | 5017 |
| cta Leu | ctc Leu | cct Pro 1075 | gct Ala | atc Ile | ctc Leu | tcc Ser | cct Pro 1080 | ggc Gly | gcc Ala | cta Leu | gtc Val | gtc Val 1085 | ggg Gly | gtc Val | gtg Val | 5065 |

| | | | | | | | | | | | | | | | | |
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| tgc Cys | gca Ala | gcg Ala | ata Ile | ctg Leu | cgt Arg | cgg Arg | cac His | gtg Val | ggc Gly | cca Pro | ggg Gly | gag Glu | ggg Gly | gct Ala | gtg Val | 5113 |
| 1090 1095 1100 | | | | | | | | | | | | | | | | |
| cag Gln | tgg Trp | atg Met | aac Asn | cgg Arg | ctg Leu | ata Ile | gcg Ala | ttc Phe | gct Ala | tcg Ser | cgg Arg | ggt Gly | aac Asn | cac His | gtc Val | 5161 |
| 1105 1110 1115 1120 | | | | | | | | | | | | | | | | |
| tcc Ser | ccc Pro | acg Thr | cac His | tat Tyr | gtg Val | cct Pro | gag Glu | agc Ser | gac Asp | gct Ala | gca Ala | gca Ala | cgt Arg | gtc Val | act Thr | 5209 |
| 1125 1130 1135 | | | | | | | | | | | | | | | | |
| cag Gln | atc Ile | ctc Leu | tct Ser | agt Ser | ctt Leu | acc Thr | atc Ile | act Thr | cag Gln | ctg Leu | ctg Leu | aag Lys | agg Arg | ctt Leu | cac His | 5257 |
| 1140 1145 1150 | | | | | | | | | | | | | | | | |
| cag Gln | tgg Trp | atc Ile | aac Asn | gag Glu | gac Asp | tgc Cys | tcc Ser | acg Thr | cca Pro | tgc Cys | tcc Ser | ggc Gly | tcg Ser | tgg Trp | cta Leu | 5305 |
| 1155 1160 1165 | | | | | | | | | | | | | | | | |
| aga Arg | gat Asp | gtt Val | tgg Trp | gat Asp | tgg Trp | ata Ile | tgc Cys | acg Thr | gtg Val | ttg Leu | act Thr | gat Asp | ttc Phe | aag Lys | acc Thr | 5353 |
| 1170 1175 1180 | | | | | | | | | | | | | | | | |
| tgg Trp | ctc Leu | cag Gln | tcc Ser | aag Lys | ctc Leu | ctg Leu | ccg Pro | cga Arg | ttg Leu | ccg Pro | gga Gly | gtc Val | ccc Pro | ttc Phe | ttc Phe | 5401 |
| 1185 1190 1195 1200 | | | | | | | | | | | | | | | | |
| tca Ser | tgt Cys | caa Gln | cgt Arg | ggg Gly | tac Tyr | aag Lys | gga Gly | gtc Val | tgg Trp | cgg Arg | ggc Gly | gac Asp | ggc Gly | atc Ile | atg Met | 5449 |
| 1205 1210 1215 | | | | | | | | | | | | | | | | |
| caa Gln | acc Thr | acc Thr | tgc Cys | cca Pro | tgt Cys | gga Gly | gca Ala | cag Gln | atc Ile | acc Thr | gga Gly | cat His | gtg Val | aaa Lys | aac Asn | 5497 |
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| ggt Gly | tcc Ser | atg Met | agg Arg | atc Ile | gtg Val | ggg Gly | cct Pro | agg Arg | acc Thr | tgt Cys | agt Ser | aac Asn | acg Thr | tgg Trp | cat His | 5545 |
| 1235 1240 1245 | | | | | | | | | | | | | | | | |
| gga Gly | aca Thr | ttc Phe | ccc Pro | att Ile | aac Asn | gcg Ala | tac Tyr | acc Thr | acg Thr | ggc Gly | ccc Pro | tgc Cys | acg Thr | ccc Pro | tcc Ser | 5593 |
| 1250 1255 1260 | | | | | | | | | | | | | | | | |
| ccg Pro | gcg Ala | cca Pro | aat Asn | tat Tyr | tct Ser | agg Arg | gcg Ala | ctg Leu | tgg Trp | cgg Arg | gtg Val | gct Ala | gct Ala | gag Glu | gag Glu | 5641 |
| 1265 1270 1275 1280 | | | | | | | | | | | | | | | | |
| tac Tyr | gtg Val | gag Glu | gtt Val | acg Thr | cgg Arg | gtg Val | ggg Gly | gat Asp | ttc Phe | cac His | tac Tyr | gtg Val | acg Thr | ggc Gly | atg Met | 5689 |
| 1285 1290 1295 | | | | | | | | | | | | | | | | |
| acc Thr | act Thr | gac Asp | aac Asn | gta Val | aag Lys | tgc Cys | ccg Pro | tgt Cys | cag Gln | gtt Val | ccg Pro | gcc Ala | ccc Pro | gaa Glu | ttc Phe | 5737 |
| 1300 1305 1310 | | | | | | | | | | | | | | | | |
| ttc Phe | aca Thr | gaa Glu | gtg Val | gat Asp | ggg Gly | gtg Val | cgg Arg | ttg Leu | cac His | agg Arg | tac Tyr | gct Ala | cca Pro | gcg Ala | tgc Cys | 5785 |
| 1315 1320 1325 | | | | | | | | | | | | | | | | |
| aaa Lys | ccc Pro | ctc Leu | cta Leu | cgg Arg | gag Glu | gag Glu | gtc Val | aca Thr | ttc Phe | ctg Leu | gtc Val | ggg Gly | ctc Leu | aat Asn | caa Gln | 5833 |
| 1330 1335 1340 | | | | | | | | | | | | | | | | |

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|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| tac Tyr 1345 | ctg Leu | gtt Val | ggg Gly | tca Ser | cag Gln 1350 | ctc Leu | cca Pro | tgc Cys | gag Glu | ccc Pro 1355 | gaa Glu | ccg Pro | gac Asp | gta Val | gca Ala 1360 | 5881 |
| gtg Val | ctc Leu | act Thr | tcc Ser | atg Met 1365 | ctc Leu | acc Thr | gac Asp | ccc Pro | tcc Ser 1370 | cac His | att Ile | acg Thr | gcg Ala | gag Glu 1375 | acg Thr | 5929 |
| gct Ala | aag Lys | cgt Arg | agg Arg 1380 | ctg Leu | gcc Ala | agg Arg | gga Gly | tct Ser 1385 | ccc Pro | ccc Pro | tcc Ser | ttg Leu | gcc Ala 1390 | agc Ser | tca Ser | 5977 |
| tca Ser | gct Ala | agc Ser 1395 | cag Gln | ctg Leu | tct Ser | gcg Ala | cct Pro 1400 | tcc Ser | ttg Leu | aag Lys | gca Ala | aca Thr 1405 | tgc Cys | act Thr | acc Thr | 6025 |
| cgt Arg | cat His 1410 | gac Asp | tcc Ser | ccg Pro | gac Asp | gct Ala 1415 | gac Asp | ctc Leu | atc Ile | gag Glu | gcc Ala 1420 | aac Asn | ctc Leu | ctg Leu | tgg Trp | 6073 |
| cgg Arg 1425 | cag Gln | gag Glu | atg Met | ggc Gly | ggg Gly 1430 | aac Asn | atc Ile | acc Thr | cgc Arg | gtg Val 1435 | gag Glu | tca Ser | gaa Glu | aat Asn | aag Lys 1440 | 6121 |
| gta Val | gta Val | att Ile | ttg Leu | gac Asp 1445 | tct Ser | ttc Phe | gag Glu | ccg Pro | ctc Leu 1450 | caa Gln | gcg Ala | gag Glu | gag Glu | gat Asp 1455 | gag Glu | 6169 |
| agg Arg | gaa Glu | gta Val | tcc Ser 1460 | gtt Val | ccg Pro | gcg Ala | gag Glu | atc Ile 1465 | ctg Leu | cgg Arg | agg Arg | tcc Ser | agg Arg 1470 | aaa Lys | ttc Phe | 6217 |
| cct Pro | cga Arg | gcg Ala 1475 | atg Met | ccc Pro | ata Ile | tgg Trp | gca Ala 1480 | cgc Arg | ccg Pro | gat Asp | tac Tyr | aac Asn 1485 | cct Pro | cca Pro | ctg Leu | 6265 |
| tta Leu | gag Glu 1490 | tcc Ser | tgg Trp | aag Lys | gac Asp | ccg Pro 1495 | gac Asp | tac Tyr | gtc Val | cct Pro | cca Pro 1500 | gtg Val | gta Val | cac His | ggg Gly | 6313 |
| tgt Cys 1505 | cca Pro | ttg Leu | ccg Pro | cct Pro | gcc Ala 1510 | aag Lys | gcc Ala | cct Pro | ccg Pro | ata Ile 1515 | cca Pro | cct Pro | cca Pro | cgg Arg | agg Arg 1520 | 6361 |
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| gag Glu | ctc Leu | gcc Ala | aca Thr 1540 | aag Lys | acc Thr | ttc Phe | ggc Gly | agc Ser 1545 | tcc Ser | gaa Glu | tcg Ser | tcg Ser | gcc Ala 1550 | gtc Val | gac Asp | 6457 |
| agc Ser | ggc Gly | acg Thr 1555 | gca Ala | acg Thr | gcc Ala | tct Ser | cct Pro 1560 | gac Asp | cag Gln | ccc Pro | tcc Ser | gac Asp 1565 | gac Asp | ggc Gly | gac Asp | 6505 |
| gcg Ala 1570 | gga Gly | tcc Ser | gac Asp | gtt Val | gag Glu | tcg Ser 1575 | tac Tyr | tcc Ser | tcc Ser | atg Met 1580 | ccc Pro | ccc Pro | ctt Leu | gag Glu | ggg Gly | 6553 |
| gag Glu 1585 | ccg Pro | ggg Gly | gat Asp | ccc Pro | gat Asp 1590 | ctc Leu | agc Ser | gac Asp | ggg Gly | tct Ser 1595 | tgg Trp | tct Ser | acc Thr | gta Val | agc Ser 1600 | 6601 |

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|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| gag Glu | gag Glu | gct Ala | agt Ser | gag Glu 1605 | gac Asp | gtc Val | gtc Val | tgc Cys | tgc Cys 1610 | tcg Ser | atg Met | tcc Ser | tac Thr | aca Thr 1615 | tgg Trp | 6649 |
| aca Thr | ggc Gly | gcc Ala | ctg Leu 1620 | atc Ile | acg Thr | cca Pro | tgc Cys | gct Ala 1625 | gcg Ala | gag Glu | gaa Glu | acc Thr | aag Lys 1630 | ctg Leu | ccc Pro | 6697 |
| atc Ile | aat Asn | gca Ala 1635 | ctg Leu | agc Ser | aac Asn | tct Ser | ttg Leu 1640 | ctc Leu | cgt Arg | cac His | cac His | aac Asn 1645 | ttg Leu | gtc Val | tat Tyr | 6745 |
| gct Ala | aca Thr 1650 | aca Thr | tct Ser | cgc Arg | agc Ser | gca Ala 1655 | agc Ser | ctg Leu | cgg Arg | cag Gln | aag Lys 1660 | aag Lys | gtc Val | acc Thr | ttt Phe | 6793 |
| gac Asp 1665 | aga Arg | ctg Leu | cag Gln | gtc Val 1670 | ctg Leu | gac Asp | gac Asp | cac His | tac Tyr | cgg Arg 1675 | gac Asp | gtg Val | ctc Leu | aag Lys | gag Glu 1680 | 6841 |
| atg Met | aag Lys | gcg Ala | aag Lys 1685 | gcg Ala | tcc Ser | aca Thr | gtt Val | aag Lys 1690 | gct Ala | aaa Lys | ctt Leu | cta Leu | tcc Ser | gtg Val 1695 | gag Glu | 6889 |
| gaa Glu | gcc Ala | tgt Cys | aag Lys 1700 | ctg Leu | acg Thr | ccc Pro | cca Pro | cat His 1705 | tcg Ser | gcc Ala | aga Arg | tct Ser | aaa Lys 1710 | ttt Phe | ggc Gly | 6937 |
| tat Tyr | ggg Gly 1715 | gca Ala | aag Lys | gac Asp | gtc Val | cgg Arg | aac Asn 1720 | cta Leu | tcc Ser | agc Ser | aag Lys | gcc Ala 1725 | gtt Val | aac Asn | cac His | 6985 |
| atc Ile 1730 | cgc Arg | tcc Ser | gtg Val | tgg Trp | aag Lys | gac Asp 1735 | ttg Leu | ctg Leu | gaa Glu | gac Asp | act Thr 1740 | gag Glu | aca Thr | cca Pro | att Ile | 7033 |
| gac Asp 1745 | acc Thr | acc Thr | atc Ile | atg Met | gca Ala 1750 | aaa Lys | aat Asn | gag Glu | gtt Val | ttc Phe 1755 | tgc Cys | gtc Val | caa Gln | cca Pro | gag Glu 1760 | 7081 |
| aag Lys | ggg Gly | ggc Gly | cgc Arg 1765 | aag Lys | cca Pro | gct Ala | cgc Arg | ctt Leu | atc Ile 1770 | gta Val | ttc Phe | cca Pro | gat Asp | ttg Leu 1775 | ggg Gly | 7129 |
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| cct Pro | cag Gln | gcc Ala 1795 | gtg Val | atg Met | ggc Gly | tct Ser | tca Ser 1800 | tac Tyr | gga Gly | ttc Phe | caa Gln | tac Tyr 1805 | tct Ser | cct Pro | gga Gly | 7225 |
| cag Gln 1810 | cgg Arg | gtc Val | gag Glu | ttc Phe | ctg Leu | gtg Val 1815 | aat Asn | gcc Ala | tgg Trp | aaa Lys | gcg Ala 1820 | aag Lys | aaa Lys | tgc Cys | cct Pro | 7273 |
| atg Met 1825 | ggc Gly | ttc Phe | gca Ala | tat Tyr | gac Asp 1830 | acc Thr | cgc Arg | tgt Cys | ttt Phe | gac Asp 1835 | tca Ser | acg Thr | gtc Val | act Thr | gag Glu 1840 | 7321 |
| aat Asn | gac Asp | atc Ile | cgt Arg | gtt Val 1845 | gag Glu | gag Glu | tca Ser | atc Ile | tac Tyr 1850 | caa Gln | tgt Cys | tgt Cys | gac Asp | ttg Leu 1855 | gcc Ala | 7369 |

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| ccc Pro | gaa Glu | gcc Ala | aga Arg 1860 | cag Gln | gcc Ala | ata Ile | agg Arg 1865 | tcg Ser 1865 | ctc Leu | aca Thr | gag Glu | cgg Arg 1870 | ctt Leu 1870 | tac Tyr | atc Ile | 7417 |
| ggg Gly | ggc Gly | ccc Pro 1875 | ctg Leu | act Thr | aat Asn | tct Ser 1880 | aaa Lys 1880 | ggg Gly | cag Gln | aac Asn | tgc Cys 1885 | ggc Gly 1885 | tat Tyr | cgc Arg | cgg Arg | 7465 |
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| tgc Cys | acg Thr | atg Met | ctc Leu | gta Val 1925 | tgc Cys | gga Gly | gac Asp | gac Asp | ctt Leu 1930 | gtc Val | gtt Val | atc Ile | tgt Cys | gaa Glu 1935 | agc Ser | 7609 |
| gcg Ala | ggg Gly | acc Thr | caa Gln 1940 | gag Glu | gac Asp | gag Glu | gcg Ala | agc Ser 1945 | cta Leu | cgg Arg | gcc Ala | ttc Phe 1950 | acg Thr 1950 | gag Glu | gct Ala | 7657 |
| atg Met | act Thr | aga Arg 1955 | tac Tyr | tct Ser | gcc Ala | ccc Pro | cct Pro 1960 | ggg Gly | gac Asp | ccg Pro | ccc Pro | aaa Lys 1965 | cca Pro | gaa Glu | tac Tyr | 7705 |
| gac Asp 1970 | ttg Leu | gag Glu | ttg Leu | ata Ile | aca Thr | tca Ser 1975 | tgc Cys | tcc Ser | tcc Ser | aat Asn | gtg Val 1980 | tca Ser | gtc Val | gcg Ala | cac His | 7753 |
| gat Asp 1985 | gca Ala | tct Ser | ggc Gly | aaa Lys | agg Arg 1990 | gtg Val | tac Tyr | tat Tyr | ctc Leu | acc Thr 1995 | cgt Arg | gac Asp | ccc Pro | acc Thr | acc Thr 2000 | 7801 |
| ccc Pro | ctt Leu | gcg Ala | cgg Arg 2005 | gct Ala 2005 | gcg Ala | tgg Trp | gag Glu | aca Thr | gct Ala 2010 | aga Arg | cac His | act Thr | cca Pro | gtc Val 2015 | aat Asn | 7849 |
| tcc Ser | tgg Trp | cta Leu | ggc Gly 2020 | aac Asn | atc Ile | atc Ile | atg Met | tat Tyr 2025 | gcg Ala | ccc Pro | acc Thr | ttg Leu | tgg Trp 2030 | gca Ala | agg Arg | 7897 |
| atg Met | atc Ile 2035 | ctg Leu | atg Met | act Thr | cat His | ttc Phe 2040 | ttc Phe | tcc Ser | atc Ile | ctt Leu | cta Leu | gct Ala 2045 | cag Gln | gaa Glu | caa Gln | 7945 |
| ctt Leu 2050 | gaa Glu 2050 | aaa Lys | gcc Ala | cta Leu | gat Asp | tgt Cys 2055 | cag Gln | atc Ile | tac Tyr | ggg Gly | gcc Ala 2060 | tgt Cys | tac Tyr | tcc Ser | att Ile | 7993 |
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| tca Ser | tgc Cys | ctc Leu | agg Arg 2100 | aaa Lys | ctt Leu | ggg Gly | gta Val | ccg Pro 2105 | ccc Pro | ttg Leu | cga Arg | gtc Val | tgg Trp 2110 | aga Arg | cat His | 8137 |

| | |
|--|------|
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| Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala | |
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| gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc | 8233 |
| Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu | |
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| aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg | 8281 |
| Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp | |
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| ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt | 8329 |
| Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg | |
| 2165 2170 2175 | |
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| Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Leu Ser Val Gly | |
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| Val Gly Ile Tyr Leu Leu Pro Asn Arg * | |
| 2195 2200 | |
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| ttttttttt tttttcctt ttttttccct ctttttttcc ttttttttcc tttgggtggc | 8547 |
| ccatcttagc cctagtcacg gctagctgtg aaagggtccgt gagccgcttg actgcagaga | 8607 |
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| gacgaccggg tcctttcttg gatcaaccgg ctcaatgcct ggagatttgg gcgtgcccc | 240 |
| gcgagactgc tagccgagta gtgttgggtc gcgaaaggcc ttgtgggtact gcctgatagg | 300 |
| gtgcttgca gtgccccggg aggtctcgta gaccgtgcac catgagcacg aatcctaaac | 360 |
| ctcaaagaaa aaccaaaagg cgcgccatga ttgaacaaga tggattgcac gcaggttctc | 420 |
| cggccgcttg ggtggagagg ctattcggct atgactgggc acaacagaca atcggctgct | 480 |
| ctgatgccgc cgtgttccgg ctgtcagcgc aggggcgccc ggttcttttt gtcaagaccg | 540 |
| acctgtccgg tgccctgaat gaactgcagg acgaggcagc gcggctatcg tggctggcca | 600 |
| cgacgggcgt tccttgcgca gctgtgctcg acgttgtcac tgaagcggga agggactggc | 660 |
| tgctattggg cgaagtgccg gggcaggatc tcctgtcatc tcaccttgct cctgccgaga | 720 |
| aagtatccat catggctgat gcaatgcggc ggctgcatac gcttgatccg gctacctgcc | 780 |
| cattcgacca ccaagcgaac catcgcatcg agcagacacg tactcgatg gaagccggtc | 840 |
| ttgtcgatca ggatgatctg gacgaagagc atcaggggct cgcgccagcc gaactgttcg | 900 |
| ccaggctcaa ggcgcgcatg cccgacggcg aggatctcgt cgtgacccat ggcgatgcct | 960 |
| gcttgccgaa tatcatgggt gaaaatggcc gcttttctgg attcatcgac tgtggccggc | 1020 |
| tgggtgtggc ggagcgtat caggacatag cgttggctac cgtgatatt gctgaagagc | 1080 |
| ttggcggcga atgggctgac cgcttctctg tgctttacgg tatcgccgct cccgattcgc | 1140 |
| agcgcatcgc cttctatcgc cttcttgacg agttcttctg agttcgcgcc cagatgttaa | 1200 |
| cagaccacaa cggtttccct ctacggggat caattccgcc ccccccccta acgttactgg | 1260 |
| ccgaagccgc ttggaataag gccggtgtgc gtttgtctat atgttatttt ccaccatatt | 1320 |
| gccgtctttt ggcaatgtga gggcccgaa acctggccct gtcttcttga cgagcattcc | 1380 |
| taggggtctt tcccctctcg ccaaaggat gcaaggctcg ttgaatgtcg tgaaggaagc | 1440 |
| agttcctctg gaagcttctt gaagacaaac aacgtctgta gcgacccttt gcaggcagcg | 1500 |

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|---|---|-------------|------------|------------|------------|------|
| gaacccccca | cctggcgaca | ggtgcctctg | cggccaaaag | ccacgtgtat | aagatacacc | 1560 |
| tgcaaaggcg | gcacaacccc | agtgccacgt | tgtgagttgg | atagttgtgg | aaagagtcaa | 1620 |
| atggctctcc | tcaagcgtat | tcaacaaggg | gctgaaggat | gcccagaagg | tacccattg | 1680 |
| tatgggatct | gatctggggc | ctcgggtgcac | atgctttaca | tgtgtttagt | cgaggttaaa | 1740 |
| aaacgtctag | gccccccgaa | ccacggggac | gtgggtttcc | tttgaaaaac | acgataatac | 1800 |
| c atg gac cgg gag atg gca gca tcg tgc gga ggc gcg gtt ttc gta ggt | | | | | | 1849 |
| Met Asp Arg Glu Met | Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly | | | | | |
| 1 | 5 | 10 | 15 | | | |
| ctg ata ctc ttg acc ttg tca ccg cac tat aag ctg ttc ctc gct agg | | | | | | 1897 |
| Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg | | | | | | |
| | 20 | 25 | 30 | | | |
| ctc ata tgg tgg tta caa tat ttt atc acc agg gcc gag gca cac ttg | | | | | | 1945 |
| Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu | | | | | | |
| | 35 | 40 | 45 | | | |
| caa gtg tgg atc ccc ccc ctc aac gtt cgg ggg ggc cgc gat gcc gtc | | | | | | 1993 |
| Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val | | | | | | |
| | 50 | 55 | 60 | | | |
| atc ctc ctc acg tgc gcg atc cac cca gag cta atc ttt acc atc acc | | | | | | 2041 |
| Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr | | | | | | |
| | 65 | 70 | 75 | | | 80 |
| aaa atc ttg ctc gcc ata ctc ggt cca ctc atg gtg ctc cag gct ggt | | | | | | 2089 |
| Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly | | | | | | |
| | 85 | 90 | 95 | | | |
| ata acc aaa gtg ccg tac ttc gtg cgc gca cac ggg ctc att cgt gca | | | | | | 2137 |
| Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala | | | | | | |
| | 100 | 105 | 110 | | | |
| tgc atg ctg gtg cgg aag gtt gct ggg ggt cat tat gtc caa atg gct | | | | | | 2185 |
| Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala | | | | | | |
| | 115 | 120 | 125 | | | |
| ctc atg aag ttg gcc gca ctg aca ggt acg tac gtt tat gac cat ctc | | | | | | 2233 |
| Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu | | | | | | |
| | 130 | 135 | 140 | | | |
| acc cca ctg cgg gac tgg gcc cac gcg ggc cta cga gac ctt gcg gtg | | | | | | 2281 |
| Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val | | | | | | |
| | 145 | 150 | 155 | | | 160 |
| gca gtt gag ccc gtc gtc ttc tct gat atg gag acc aag gtt atc acc | | | | | | 2329 |
| Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr | | | | | | |
| | 165 | 170 | 175 | | | |
| tgg ggg gca gac acc gcg gcg tgt ggg gac atc atc ttg ggc ctg ccc | | | | | | 2377 |
| Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu Pro | | | | | | |
| | 180 | 185 | 190 | | | |
| gtc tcc gcc cgc agg ggg agg gag ata cat ctg gga ccg gca gac agc | | | | | | 2425 |
| Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser | | | | | | |
| | 195 | 200 | 205 | | | |
| ctt gaa ggg cag ggg tgg cga ctc ctc gcg cct att acg gcc tac tcc | | | | | | 2473 |
| Leu Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser | | | | | | |
| | 210 | 215 | 220 | | | |
| caa cag acg cga ggc cta ctt ggc tgc atc atc acc agc ctc aca ggc | | | | | | 2521 |
| Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly | | | | | | |
| | 225 | 230 | 235 | | | 240 |
| | | | 74 | | | |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| cgg Arg | gac Asp | agg Arg | aac Asn | cag Gln 245 | gtc Val | gag Glu | ggg Gly | gag Glu | gtc Val 250 | caa Gln | gtg Val | gtc Val | tcc Ser | acc Thr 255 | gca Ala | 2569 |
| aca Thr | caa Gln | tct Ser | ttc Phe 260 | ctg Leu | gcg Ala | acc Thr | tgc Cys | gtc Val 265 | aat Asn | ggc Gly | gtg Val | tgt Cys | tgg Trp 270 | act Thr | gtc Val | 2617 |
| tat Tyr | cat His | ggt Gly 275 | gcc Ala | ggc Gly | tca Ser | aag Lys | acc Thr 280 | ctt Leu | gcc Ala | ggc Gly | cca Pro | aag Lys 285 | ggc Gly | cca Pro | atc Ile | 2665 |
| acc Thr | caa Gln 290 | atg Met | tac Tyr | acc Thr | aat Asn | gtg Val 295 | gac Asp | cag Gln | gac Asp | ctc Leu | gtc Val 300 | ggc Gly | tgg Trp | caa Gln | gcg Ala | 2713 |
| ccc Pro 305 | ccc Pro | ggg Gly | gcg Ala | cgt Arg | tcc Ser 310 | ttg Leu | aca Thr | cca Pro | tgc Cys | acc Thr 315 | tgc Cys | ggc Gly | agc Ser | tcg Ser | gac Asp 320 | 2761 |
| ctt Leu | tac Tyr | ttg Leu | gtc Val | acg Thr 325 | aag Lys | cat His | gcc Ala | gat Asp | gtc Val 330 | att Ile | ccg Pro | gtg Val | cgc Arg | cgg Arg 335 | cgg Arg | 2809 |
| ggc Gly | gac Asp | agc Ser | agg Arg 340 | ggg Gly | agc Ser | cta Leu | ctc Leu | tcc Ser 345 | ccc Pro | cgg Arg | ccc Pro | gtc Val | tcc Ser 350 | tac Tyr | ttg Leu | 2857 |
| aag Lys | ggc Gly | tct Ser 355 | tcg Ser | ggc Gly | ggt Gly | cca Pro | ctg Leu 360 | ctc Leu | tgc Cys | ccc Pro | tcg Ser | ggg Gly 365 | cac His | gct Ala | gtg Val | 2905 |
| ggc Gly | atc Ile 370 | ttt Phe | cgg Arg | gct Ala | gcc Ala | gtg Val 375 | tgc Cys | acc Thr | cga Arg | ggg Gly | gtt Val 380 | gcg Ala | aag Lys | gcg Ala | gtg Val | 2953 |
| gac Asp 385 | ttt Phe | gta Val | ccc Pro | gtc Val | gag Glu 390 | tct Ser | atg Met | gaa Glu | acc Thr | act Thr 395 | atg Met | cgg Arg | tcc Ser | ccg Pro | gtc Val 400 | 3001 |
| ttc Phe | acg Thr | gac Asp | aac Asn | tcg Ser 405 | tcc Ser | cct Pro | ccg Pro | gcc Ala | gta Val 410 | ccg Pro | cag Gln | aca Thr | ttc Phe | cag Gln 415 | gtg Val | 3049 |
| gcc Ala | cat His | cta Leu | cac His 420 | gcc Ala | cct Pro | act Thr | ggt Gly | agc Ser 425 | ggc Gly | aag Lys | agc Ser | act Thr | aag Lys 430 | gtg Val | ccg Pro | 3097 |
| gct Ala | gcg Ala | tat Tyr 435 | gca Ala | gcc Ala | caa Gln | ggg Gly | tat Tyr 440 | aag Lys | gtg Val | ctt Leu | gtc Val | ctg Leu 445 | aac Asn | ccg Pro | tcc Ser | 3145 |
| gtc Val | gcc Ala 450 | gcc Ala | acc Thr | cta Leu | ggt Gly | ttc Phe 455 | ggg Gly | gcg Ala | tat Tyr | atg Met | tct Ser 460 | aag Lys | gca Ala | cat His | ggt Gly | 3193 |
| atc Ile 465 | gac Asp | cct Pro | aac Asn | atc Ile | aga Arg 470 | acc Thr | ggg Gly | gta Val | agg Arg | acc Thr 475 | atc Ile | acc Thr | acg Thr | ggt Gly | gcc Ala 480 | 3241 |
| ccc Pro | atc Ile | acg Thr | tac Tyr | tcc Ser 485 | acc Thr | tat Tyr | ggc Gly | aag Lys | ttt Phe 490 | ctt Leu | gcc Ala | gac Asp | ggt Gly | ggt Gly 495 | tgc Cys | 3289 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| tct Ser | ggg Gly | ggc Gly | gcc Ala 500 | tat Tyr | gac Asp | atc Ile | ata Ile 505 | ata Ile 505 | tgt Cys | gat Asp | gag Glu | tgc Cys | cac His 510 | tca Ser | act Thr | 3337 |
| gac Asp | tcg Ser | acc Thr 515 | act Thr | atc Ile | ctg Leu | ggc Gly | atc Ile 520 | ggc Gly | aca Thr | gtc Val | ctg Leu | gac Asp 525 | caa Gln | gcg Ala | gag Glu | 3385 |
| acg Thr | gct Ala 530 | gga Gly | gcg Ala | cga Arg | ctc Leu | gtc Val 535 | gtg Val | ctc Leu | gcc Ala | acc Thr | gct Ala 540 | acg Thr | cct Pro | ccg Pro | gga Gly | 3433 |
| tcg Ser 545 | gtc Val | acc Thr | gtg Val | cca Pro | cat His 550 | cca Pro | aac Asn | atc Ile | gag Glu | gag Glu 555 | gtg Val | gct Ala | ctg Leu | tcc Ser | agc Ser 560 | 3481 |
| act Thr | gga Gly | gaa Glu | atc Ile | ccc Pro 565 | ttt Phe | tat Tyr | ggc Gly | aaa Lys | gcc Ala 570 | atc Ile | ccc Pro | atc Ile | gag Glu | acc Thr 575 | atc Ile | 3529 |
| aag Lys | ggg Gly | ggg Gly | agg Arg 580 | cac His | ctc Leu | att Ile | ttc Phe | tgc Cys 585 | cat His | tcc Ser | aag Lys | aag Lys | aaa Lys 590 | tgc Cys | gat Asp | 3577 |
| gag Glu | ctc Leu | gcc Ala 595 | gcg Ala | aag Lys | ctg Leu | tcc Ser | ggc Gly 600 | ctc Leu | gga Gly | ctc Leu | aat Asn | gct Ala 605 | gta Val | gca Ala | tat Tyr | 3625 |
| tac Tyr | cgg Arg 610 | ggc Gly | ctt Leu | gat Asp | gta Val | tcc Ser 615 | gtc Val | ata Ile | cca Pro | act Thr | agc Ser 620 | gga Gly | gac Asp | gtc Val | att Ile | 3673 |
| gtc Val 625 | gta Val | gca Ala | acg Thr | gac Asp | gct Ala 630 | cta Leu | atg Met | acg Thr | ggc Gly | ttt Phe 635 | acc Thr | ggc Gly | gat Asp | ttc Phe | gac Asp 640 | 3721 |
| tca Ser | gtg Val | atc Ile | gac Asp | tgc Cys 645 | aat Asn | aca Thr | tgt Cys | gtc Val | acc Thr 650 | cag Gln | aca Thr | gtc Val | gac Asp | ttc Phe 655 | agc Ser | 3769 |
| ctg Leu | gac Asp | ccg Pro | acc Thr 660 | ttc Phe | acc Thr | att Ile | gag Glu | acg Thr 665 | acg Thr | acc Thr | gtg Val | cca Pro | caa Gln 670 | gac Asp | gcg Ala | 3817 |
| gtg Val | tca Ser | cgc Arg 675 | tcg Ser | cag Gln | cgg Arg | cga Arg | ggc Gly 680 | agg Arg | act Thr | ggc Gly | agg Arg | ggc Gly 685 | agg Arg | atg Met | ggc Gly | 3865 |
| att Ile | tac Tyr 690 | agg Arg | ttt Phe | gtg Val | act Thr | cca Pro 695 | gga Gly | gaa Glu | cgg Arg | ccc Pro | tcg Ser 700 | ggc Gly | atg Met | ttc Phe | gat Asp | 3913 |
| tcc Ser 705 | tcg Ser | gtt Val | ctg Leu | tgc Cys | gag Glu 710 | tgc Cys | tat Tyr | gac Asp | gcg Ala | ggc Gly 715 | tgt Cys | gct Ala | tgg Trp | tac Tyr | gag Glu 720 | 3961 |
| ctc Leu | acg Thr | ccc Pro | gcc Ala 725 | gag Glu | acc Thr | tca Ser | gtt Val | agg Arg | ttg Leu 730 | cgg Arg | gct Ala | tac Tyr | cta Leu | aac Asn 735 | aca Thr | 4009 |
| cca Pro | ggg Gly | ttg Leu | ccc Pro 740 | gtc Val | tgc Cys | cag Gln | gac Asp | cat His 745 | ctg Leu | gag Glu | ttc Phe | tgg Trp | gag Glu 750 | ggc Gly | gtc Val | 4057 |

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|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|------|
| ttt Phe | aca Thr | ggc Gly 755 | ctc Leu | acc Thr | cac His | ata Ile | gac Asp 760 | gcc Ala | cat His | ttc Phe | ttg Leu | tcc Ser 765 | cag Gln | act Thr | aag Lys | 4105 |
| cag Gln | gca Ala 770 | gga Gly | gac Asp | aac Asn | ttc Phe | ccc Pro 775 | tac Tyr | ctg Leu | gta Val | gca Ala | tac Tyr 780 | cag Gln | gct Ala | acg Thr | gtg Val | 4153 |
| tgc Cys 785 | gcc Ala | agg Arg | gct Ala | cag Gln | gct Ala 790 | cca Pro | cct Pro | cca Pro | tcg Ser | tgg Trp 795 | gac Asp | caa Gln | atg Met | tgg Trp | aag Lys 800 | 4201 |
| tgt Cys | ctc Leu | ata Ile | cgg Arg | cta Leu 805 | aag Lys | cct Pro | acg Thr | ctg Leu | cac His 810 | ggg Gly | cca Pro | acg Thr | ccc Pro | ctg Leu 815 | ctg Leu | 4249 |
| tat Tyr | agg Arg | ctg Leu | gga Gly 820 | gcc Ala | gtt Val | caa Gln | aac Asn | gag Glu 825 | gtt Val | act Thr | acc Thr | aca Thr | cac His 830 | ccc Pro | ata Ile | 4297 |
| acc Thr | aaa Lys | tac Tyr 835 | atc Ile | atg Met | gca Ala | tgc Cys | atg Met 840 | tcg Ser | gct Ala | gac Asp | ctg Leu | gag Glu 845 | gtc Val | gtc Val | acg Thr | 4345 |
| agc Ser | acc Thr 850 | tgg Trp | gtg Val | ctg Leu | gta Val | ggc Gly 855 | gga Gly | gtc Val | cta Leu | gca Ala | gct Ala 860 | ctg Leu | gct Ala | gcg Ala | tat Tyr | 4393 |
| tgc Cys 865 | ctg Leu | aca Thr | aca Thr | ggc Gly | agc Ser 870 | gtg Val | gtc Val | att Ile | gtg Val | ggc Gly 875 | agg Arg | atc Ile | atc Ile | ttg Leu | tcc Ser 880 | 4441 |
| gga Gly | agg Arg | ccg Pro | gcc Ala | atc Ile 885 | att Ile | ccc Pro | gac Asp | agg Arg | gaa Glu 890 | gtc Val | ctt Leu | tac Tyr | cgg Arg | gag Glu 895 | ttc Phe | 4489 |
| gat Asp | gag Glu | atg Met | gaa Glu 900 | gag Glu | tgt Cys | gcc Ala | tca Ser | cac His 905 | ctc Leu | cct Pro | tac Tyr | atc Ile | gaa Glu 910 | cag Gln | gga Gly | 4537 |
| atg Met | cag Gln | ctc Leu 915 | gcc Ala | gaa Glu | caa Gln | ttc Phe | aaa Lys 920 | cag Gln | aag Lys | gca Ala | atc Ile | ggg Gly 925 | ttg Leu | ctg Leu | caa Gln | 4585 |
| aca Thr | gcc Ala 930 | acc Thr | aag Lys | caa Gln | gcg Ala | gag Glu 935 | gct Ala | gct Ala | gct Ala | ccc Pro | gtg Val 940 | gtg Val | gaa Glu | tcc Ser | aag Lys | 4633 |
| tgg Trp 945 | cgg Arg | acc Thr | ctc Leu | gaa Glu | gcc Ala 950 | ttc Phe | tgg Trp | gcg Ala | aag Lys | cat His 955 | atg Met | tgg Trp | aat Asn | ttc Phe | atc Ile 960 | 4681 |
| agc Ser | ggg Gly | ata Ile | caa Gln | tat Tyr 965 | tta Leu | gca Ala | ggc Gly | ttg Leu | tcc Ser 970 | act Thr | ctg Leu | cct Pro | ggc Gly | aac Asn 975 | ccc Pro | 4729 |
| gcg Ala | ata Ile | gca Ala | tca Ser 980 | ctg Leu | atg Met | gca Ala | ttc Phe | aca Thr 985 | gcc Ala | tct Ser | atc Ile | acc Thr | agc Ser 990 | ccg Pro | ctc Leu | 4777 |
| acc Thr | acc Thr | caa Gln 995 | cat His | acc Thr | ctc Leu | ctg Leu | ttt Phe 1000 | aac Asn | atc Ile | ctg Leu | ggg Gly | gga Gly 1005 | tgg Trp | gtg Val | gcc Ala | 4825 |

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|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|
| gcc Ala | caa Gln | ctt Leu | gct Ala | cct Pro | ccc Pro | agc Ser | gct Ala | gct Ala | tcc Ser | gct Ala | ttc Phe | gta Val | ggc Gly | gcc Ala | ggc Gly | 4873 |
| 1010 | | | | | | | | | | | | | | | | |
| atc Ile | gct Ala | gga Gly | gcg Ala | gct Ala | gtt Val | ggc Gly | agc Ser | ata Ile | ggc Gly | ctt Leu | ggg Gly | aag Lys | gtg Val | ctt Leu | gtg Val | 4921 |
| 1025 | | | | | | | | | | | | | | | | |
| 1030 | | | | | | | | | | | | | | | | |
| 1035 | | | | | | | | | | | | | | | | |
| 1040 | | | | | | | | | | | | | | | | |
| gat Asp | att Ile | ttg Leu | gca Ala | ggt Gly | tat Tyr | gga Gly | gca Ala | ggg Gly | gtg Val | gca Ala | ggc Gly | gcg Ala | ctc Leu | gtg Val | gcc Ala | 4969 |
| 1045 | | | | | | | | | | | | | | | | |
| 1050 | | | | | | | | | | | | | | | | |
| 1055 | | | | | | | | | | | | | | | | |
| ttt Phe | aag Lys | gtc Val | atg Met | agc Ser | ggc Gly | gag Glu | atg Met | ccc Pro | tcc Ser | acc Thr | gag Glu | gac Asp | ctg Leu | gtt Val | aac Asn | 5017 |
| 1060 | | | | | | | | | | | | | | | | |
| 1065 | | | | | | | | | | | | | | | | |
| 1070 | | | | | | | | | | | | | | | | |
| cta Leu | ctc Leu | cct Pro | gct Ala | atc Ile | ctc Leu | tcc Ser | cct Pro | ggc Gly | gcc Ala | cta Leu | gtc Val | gtc Val | ggg Gly | gtc Val | gtg Val | 5065 |
| 1075 | | | | | | | | | | | | | | | | |
| 1080 | | | | | | | | | | | | | | | | |
| 1085 | | | | | | | | | | | | | | | | |
| tgc Cys | gca Ala | gcg Ala | ata Ile | ctg Leu | cgt Arg | cgg Arg | cac His | gtg Val | ggc Gly | cca Pro | ggg Gly | gag Glu | ggg Gly | gct Ala | gtg Val | 5113 |
| 1090 | | | | | | | | | | | | | | | | |
| 1095 | | | | | | | | | | | | | | | | |
| 1100 | | | | | | | | | | | | | | | | |
| cag Gln | tgg Trp | atg Met | aac Asn | cgg Arg | ctg Leu | ata Ile | gcg Ala | ttc Phe | gct Ala | tcg Ser | cgg Arg | ggt Gly | aac Asn | cac His | gtc Val | 5161 |
| 1105 | | | | | | | | | | | | | | | | |
| 1110 | | | | | | | | | | | | | | | | |
| 1115 | | | | | | | | | | | | | | | | |
| 1120 | | | | | | | | | | | | | | | | |
| tcc Ser | ccc Pro | acg Thr | cac His | tat Tyr | gtg Val | cct Pro | gag Glu | agc Ser | gac Asp | gct Ala | gca Ala | gca Ala | cgt Arg | gtc Val | act Thr | 5209 |
| 1125 | | | | | | | | | | | | | | | | |
| 1130 | | | | | | | | | | | | | | | | |
| 1135 | | | | | | | | | | | | | | | | |
| cag Gln | atc Ile | ctc Leu | tct Ser | agt Ser | ctt Leu | acc Thr | atc Ile | act Thr | cag Gln | ctg Leu | ctg Leu | aag Lys | agg Arg | ctt Leu | cac His | 5257 |
| 1140 | | | | | | | | | | | | | | | | |
| 1145 | | | | | | | | | | | | | | | | |
| 1150 | | | | | | | | | | | | | | | | |
| cag Gln | tgg Trp | atc Ile | aac Asn | gag Glu | gac Asp | tgc Cys | tcc Ser | acg Thr | cca Pro | tgc Cys | tcc Ser | ggc Gly | tcg Ser | tgg Trp | cta Leu | 5305 |
| 1155 | | | | | | | | | | | | | | | | |
| 1160 | | | | | | | | | | | | | | | | |
| 1165 | | | | | | | | | | | | | | | | |
| aga Arg | gat Asp | gtt Val | tgg Trp | gat Asp | tgg Trp | ata Ile | tgc Cys | acg Thr | gtg Val | ttg Leu | act Thr | gat Asp | ttc Phe | aag Lys | gcc Ala | 5353 |
| 1170 | | | | | | | | | | | | | | | | |
| 1175 | | | | | | | | | | | | | | | | |
| 1180 | | | | | | | | | | | | | | | | |
| tgg Trp | ctc Leu | cag Gln | tcc Ser | aag Lys | ctc Leu | ctg Leu | ccg Pro | cga Arg | ttg Leu | ccg Pro | gga Gly | gtc Val | ccc Pro | ttc Phe | ttc Phe | 5401 |
| 1185 | | | | | | | | | | | | | | | | |
| 1190 | | | | | | | | | | | | | | | | |
| 1195 | | | | | | | | | | | | | | | | |
| 1200 | | | | | | | | | | | | | | | | |
| tca Ser | tgt Cys | caa Gln | cgt Arg | ggg Gly | tac Tyr | aag Lys | gga Gly | gtc Val | tgg Trp | cgg Arg | ggc Gly | gac Asp | ggc Gly | atc Ile | atg Met | 5449 |
| 1205 | | | | | | | | | | | | | | | | |
| 1210 | | | | | | | | | | | | | | | | |
| 1215 | | | | | | | | | | | | | | | | |
| caa Gln | acc Thr | acc Thr | tgc Cys | cca Pro | tgt Cys | gga Gly | gca Ala | cag Gln | atc Ile | acc Thr | gga Gly | cat His | gtg Val | aaa Lys | aac Asn | 5497 |
| 1220 | | | | | | | | | | | | | | | | |
| 1225 | | | | | | | | | | | | | | | | |
| 1230 | | | | | | | | | | | | | | | | |
| tgt Cys | tcc Ser | atg Met | agg Arg | atc Ile | gtg Val | ggg Gly | cct Pro | agg Arg | acc Thr | tgt Cys | agt Ser | aac Asn | acg Thr | tgg Trp | cat His | 5545 |
| 1235 | | | | | | | | | | | | | | | | |
| 1240 | | | | | | | | | | | | | | | | |
| 1245 | | | | | | | | | | | | | | | | |
| gga Gly | aca Thr | ttc Phe | ccc Pro | att Ile | aac Asn | gcg Ala | tac Tyr | acc Thr | acg Thr | ggc Gly | ccc Pro | tgc Cys | acg Thr | ccc Pro | tcc Ser | 5593 |
| 1250 | | | | | | | | | | | | | | | | |
| 1255 | | | | | | | | | | | | | | | | |
| 1260 | | | | | | | | | | | | | | | | |

| | |
|---|------|
| ccg gcg cca aat tat tct agg gcg ctg tgg cgg gtg gct gct gag gag Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu 1265 1270 1275 1280 | 5641 |
| tac gtg gag gtt acg cga gtg ggg gat ttc cac tac gtg acg ggc atg Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met 1285 1290 1295 | 5689 |
| acc act gac aac gta aag tgc ccg tgt cag gtt ccg gcc ccc gaa ttc Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val Pro Ala Pro Glu Phe 1300 1305 1310 | 5737 |
| ttc aca gaa gtg gat ggg gtg cgg ttg cac agg tac gct cca gcg tgc Phe Thr Glu Val Asp Gly Val Arg Leu His Arg Tyr Ala Pro Ala Cys 1315 1320 1325 | 5785 |
| aaa ccc ctc cta cgg gag gag gtc aca ttc ctg gtc ggg ctc aat caa Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln 1330 1335 1340 | 5833 |
| tac ccg gtt ggg tca cag ctc cca tgc gag ccc gaa ctg gac gta gca Tyr Pro Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Leu Asp Val Ala 1345 1350 1355 1360 | 5881 |
| gtg ctc act tcc atg ctc acc gac ccc tcc cac att acg gcg gag acg Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr 1365 1370 1375 | 5929 |
| gct aag cgt agg ctg gcc agg gga tct ccc ccc tcc ttg gcc agc tca Ala Lys Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Leu Ala Ser Ser 1380 1385 1390 | 5977 |
| tca gct agc cag ctg tct gcg cct tcc ttg aag gca aca tgc act acc Ser Ala Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Thr 1395 1400 1405 | 6025 |
| cgt cat gac tcc ccg gac gct gac ctc atc gag gcc aac ctc ctg tgg Arg His Asp Ser Pro Asp Ala Asp Leu Ile Glu Ala Asn Leu Leu Trp 1410 1415 1420 | 6073 |
| cgg cag gag atg ggc ggg aac atc acc cgc gtg gag tca gag aat aag Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys 1425 1430 1435 1440 | 6121 |
| gta gta att ttg gac tct ttc gag ccg ctc caa gcg gag gag gat gag Val Val Ile Leu Asp Ser Phe Glu Pro Leu Gln Ala Glu Glu Asp Glu 1445 1450 1455 | 6169 |
| agg gaa gta tcc gtt ccg gcg gag atc ctg cgg agg tcc agg aaa ttc Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe 1460 1465 1470 | 6217 |
| cct cga gcg atg ccc ata tgg gca cgc ccg gat tac aac cct cca ctg Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu 1475 1480 1485 | 6265 |
| tta gag tcc tgg aag gac ccg gac tac gtc cct cca gtg gta cac ggg Leu Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly 1490 1495 1500 | 6313 |
| tgt cca ttg ccg cct gcc aag gcc cct ccg ata cca cct cca cgg agg Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg 1505 1510 1515 1520 | 6361 |

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|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------|
| aag Lys | agg Arg | acg Thr | gtt Val | gtc Val 1525 | ctg Leu | tca Ser | gaa Glu | tct Ser | acc Thr 1530 | gtg Val | tct Ser | tct Ser | gcc Ala | ttg Leu 1535 | gcg Ala | 6409 |
| gag Glu | ctc Leu | gcc Ala | aca Thr 1540 | aag Lys | acc Thr | ttc Phe | ggc Gly | agc Ser 1545 | tcc Ser | gaa Glu | tcg Ser | tcg Ser | gcc Ala 1550 | gtc Val | gac Asp | 6457 |
| agc Ser | ggc Gly | acg Thr 1555 | gca Ala | acg Thr | gcc Ala | tct Ser | cct Pro 1560 | gac Asp | cag Gln | ccc Pro | tcc Ser | gac Asp 1565 | gac Asp | ggc Gly | gac Asp | 6505 |
| gcg Ala | gga Gly 1570 | tcc Ser | gac Asp | gtt Val | gag Glu | tcg Ser 1575 | tac Tyr | tcc Ser | tcc Ser | atg Met | ccc Pro 1580 | ccc Pro | ctt Leu | gag Glu | ggg Gly | 6553 |
| gag Glu 1585 | ccg Pro | ggg Gly | gat Asp | ccc Pro | gat Asp 1590 | ctc Leu | agc Ser | gac Asp | ggg Gly | tct Ser 1595 | tgg Trp | tct Ser | acc Thr | gta Val | agc Ser 1600 | 6601 |
| gag Glu | gag Glu | gct Ala | agt Ser | gag Glu 1605 | gac Asp | gtc Val | gtc Val | tgc Cys | tgc Cys 1610 | tcg Ser | atg Met | tcc Ser | tac Tyr | aca Thr 1615 | tgg Trp | 6649 |
| aca Thr | ggc Gly | gcc Ala | ctg Leu 1620 | atc Ile | acg Thr | cca Pro | tgc Cys | gct Ala 1625 | gcg Ala | gag Glu | gaa Glu | acc Thr | aag Lys 1630 | ctg Leu | ccc Pro | 6697 |
| atc Ile | aat Asn | gca Ala 1635 | ctg Leu | agc Ser | aac Asn | tct Ser | ttg Leu 1640 | ctc Leu | cgt Arg | cac His | cac His | aac Asn 1645 | ttg Leu | gtc Val | tat Tyr | 6745 |
| gct Ala 1650 | aca Thr | aca Thr | tct Ser | cgc Arg | agc Ser | gca Ala 1655 | agc Ser | ctg Leu | cgg Arg | cag Gln | aag Lys 1660 | aag Lys | gtc Val | acc Thr | ttt Phe | 6793 |
| gac Asp 1665 | aga Arg | ctg Leu | cag Gln | gtc Val 1670 | ctg Leu | gac Asp | gac Asp | cac His | tac Tyr | cgg Arg 1675 | gac Asp | gtg Val | ctc Leu | aag Lys | gag Glu 1680 | 6841 |
| atg Met | aag Lys | gcg Ala | aag Lys | gcg Ala 1685 | tcc Ser | aca Thr | gtt Val | aag Lys | gct Ala 1690 | aaa Lys | ctt Leu | cta Leu | tcc Ser | gtg Val 1695 | gag Glu | 6889 |
| gaa Glu | gcc Ala | tgt Cys | aag Lys 1700 | ctg Leu | acg Thr | ccc Pro | cca Pro | cat His 1705 | tcg Ser | gcc Ala | aga Arg | tct Ser | aaa Lys 1710 | ttt Phe | ggc Gly | 6937 |
| tat Tyr | ggg Gly | gca Ala 1715 | aag Lys | gac Asp | gtc Val | cgg Arg | aac Asn 1720 | cta Leu | tcc Ser | agc Ser | aag Lys | gcc Ala 1725 | gtt Val | aac Asn | cac His | 6985 |
| atc Ile 1730 | cgc Arg | tcc Ser | gtg Val | tgg Trp | aag Lys | gac Asp 1735 | ttg Leu | ctg Leu | gaa Glu | gac Asp | act Thr 1740 | gag Glu | aca Thr | cca Pro | att Ile | 7033 |
| gac Asp 1745 | acc Thr | acc Thr | atc Ile | atg Met | gca Ala 1750 | aaa Lys | aat Asn | gag Glu | gtt Val | ttc Phe 1755 | tgc Cys | gtc Val | caa Gln | cca Pro | gag Glu 1760 | 7081 |
| aag Lys | ggg Gly | ggc Gly | cgc Arg | aag Lys 1765 | cca Pro | gct Ala | cgc Arg | ctt Leu | atc Ile 1770 | gta Val | ttc Phe | cca Pro | gat Asp | ttg Leu 1775 | ggg Gly | 7129 |

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|---|------|
| gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu 1780 1785 1790 | 7177 |
| cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly 1795 1800 1805 | 7225 |
| cag cgg gtc gag ttc ctg gtg aat gcc tgg aaa gcg aag aaa tgc cct Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro 1810 1815 1820 | 7273 |
| atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu 1825 1830 1835 1840 | 7321 |
| aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala 1845 1850 1855 | 7369 |
| ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile 1860 1865 1870 | 7417 |
| ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg 1875 1880 1885 | 7465 |
| tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc aca Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr 1890 1895 1900 | 7513 |
| tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac Cys Tyr Leu Lys Ala Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp 1905 1910 1915 1920 | 7561 |
| tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser 1925 1930 1935 | 7609 |
| gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala 1940 1945 1950 | 7657 |
| atg act aga tac tct gcc ccc cct ggg gac ccg ccc aaa cca gaa tac Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr 1955 1960 1965 | 7705 |
| gac ttg gag ttg ata aca tca tgc tcc tcc aat gtg tca gtc gcg cac Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His 1970 1975 1980 | 7753 |
| gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr 1985 1990 1995 2000 | 7801 |
| ccc ctt gcg cgg gct gcg tgg gag aca gct aga cac act cca gtc aat Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn 2005 2010 2015 | 7849 |
| tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg 2020 2025 2030 | 7897 |

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|--|------|
| atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa caa | 7945 |
| Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln | |
| 2035 2040 2045 | |
| ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att | 7993 |
| Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile | |
| 2050 2055 2060 | |
| gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc | 8041 |
| Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser | |
| 2065 2070 2075 2080 | |
| gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct | 8089 |
| Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala | |
| 2085 2090 2095 | |
| tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat | 8137 |
| Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His | |
| 2100 2105 2110 | |
| cgg gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct | 8185 |
| Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala | |
| 2115 2120 2125 | |
| gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc | 8233 |
| Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu | |
| 2130 2135 2140 | |
| aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg | 8281 |
| Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp | |
| 2145 2150 2155 2160 | |
| ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt | 8329 |
| Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg | |
| 2165 2170 2175 | |
| gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg | 8377 |
| Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Leu Ser Val Gly | |
| 2180 2185 2190 | |
| gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca | 8427 |
| Val Gly Ile Tyr Leu Leu Pro Asn Arg * | |
| 2195 2200 | |
| ggccaatagg ccatacctgtt tttttccctt tttttttttt tttttttttt tttttttttt | 8487 |
| tttttttttt tttttctcctt tttttttcct cttttttttc tttttctttcc ttttggtggct | 8547 |
| ccatcttagc cctagtcacg gctagctgtg aaaggtccgt gagccgcttg actgcagaga | 8607 |
| gtgctgatac tggcctctct gcagatcaag t | 8638 |

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7

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